

SCIENCE AND INDUSTRY

MANUFACTURERS RECORD

— PROMISING —

REFERENCE

"I believe in free enterprise—and always have. DO NOT LOSE

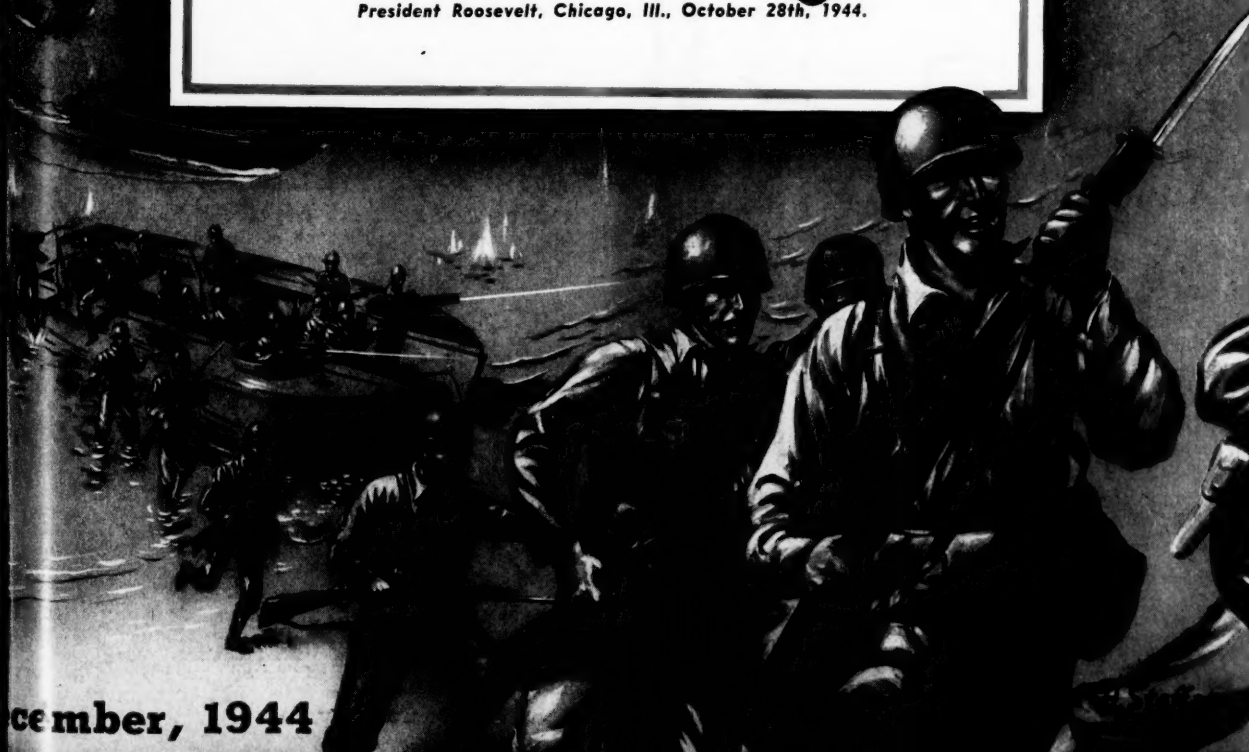
I believe in the profit system—and always have.

I believe that private business can give full employment to our people.

I believe in exceptional rewards for innovation, skill and risk taking by business.

We shall lift production and price control as soon as they are no longer needed, encouraging private business to produce more of the things to which we're accustomed and thousands of new things, in ever-increasing volume, under conditions of free and open competition."

President Roosevelt, Chicago, Ill., October 28th, 1944.



December, 1944

New Horizons *in* WELDING



A NEW 16MM. SOUND FILM

Here It Is! The Dramatic Story of Production Welding—Brought to You Via Motion Pictures

"New Horizons in Welding" is the first complete story of production welding ever to reach the screen . . . 30 fast-moving minutes of sound screen entertainment.

Here is the drama of the electric arc—the gleam that has grown from a glimmer—grown 500 times in 10 years! Here, too, is an education in the methods used to cut costs and speed production where welding has hit the peak of its development—in the fabrication of all-welded products.

An "Inside" Story — But Available to All

"New Horizons in Welding" is really an inside story . . . filmed in the plant of one of the world's largest makers as well as users of all-welded equipment. There you see the step-by-step procedure for welding on a mass production basis. Every step, from the birth of a project in the blueprint department to the host of labor-saving devices which speed it to completion—you'll see them all in "New Horizons in Welding."

P&H offers this absorbing, educational feature without cost to all interested groups—manufacturers, industrial schools, shipyards, government agencies, etc. Inquiries should be addressed to: Harnischfeger Corporation, Welding Division, 4596 West National Avenue, Milwaukee 14, Wisconsin.

P & H

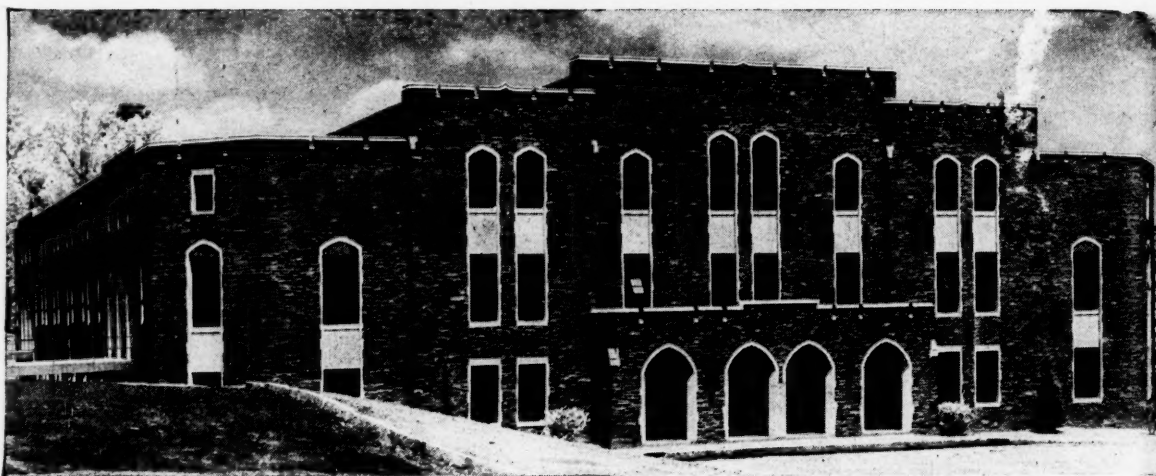
HARNISCHFEGER CORPORATION

WELDING ELECTRODES • MOTORS • HOISTS • P&H • ELECTRIC CRANES • ARC WELDERS • EXCAVATORS

Overhead Cranes • Electric Hoists
Excavators • Welding Positioners
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DECEMBER



Indoor stadium at Duke University, Durham, N. C., built some years before the war with pre-fabricated steelwork from Ingalls.

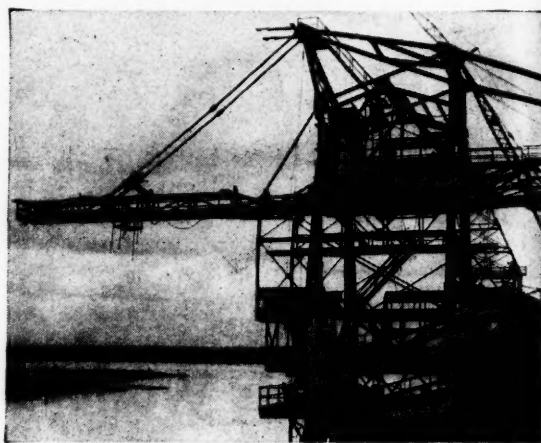
Steel

TO FIT THE JOB

By pre-fabricating each member to exact specifications, steelwork from Ingalls is erected quickly, economically. The "tailored steel" technique requires well-equipped plants, specialized labor and expert supervision, and Ingalls combines all these elements with the broad experience of 34 years as an independent steel fabricator. Barring circumstances beyond our control, Ingalls has never failed to make good on any bid or order—a record which recommends this company as a reliable source in your post-war building and reconversion plans. Write today for "Tailoring with Steel," 32-page booklet showing the wide scope of Ingalls service.

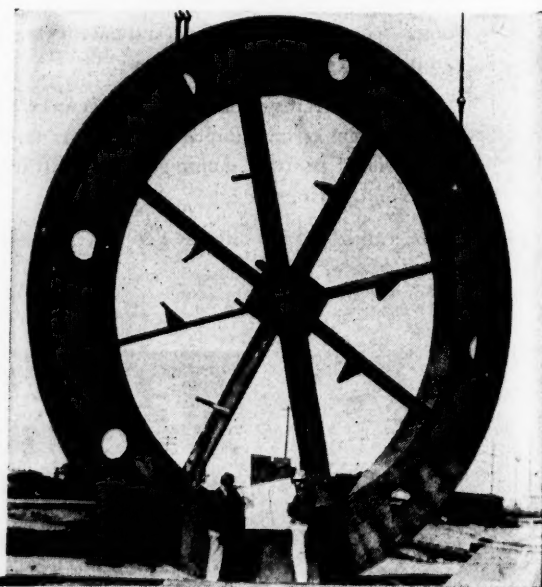


THE INGALLS IRON WORKS COMPANY, THE INGALLS SHIPBUILDING CORPORATION, The Steel Construction Company, Birmingham Tank Company. Offices at BIRMINGHAM, New York, Washington, Pittsburgh, New Orleans. Fabricating plants at Birmingham and Pittsburgh. Shipyards at Pascagoula, Mississippi and Decatur, Alabama.



Conveyor tower, a mass of intricate steelwork, pre-fabricated by Ingalls for Robins Conveying Belt Co., Mobile, Ala.

Like the wheel from a giant's chariot is this 17-ton revolving crane base, built by Ingalls for U. S. Q. M. C. derrick barge.



MANUFACTURERS RECORD

ESTABLISHED 1892

A Publication for Executives

Volume 113 DECEMBER, 1944 Number 12

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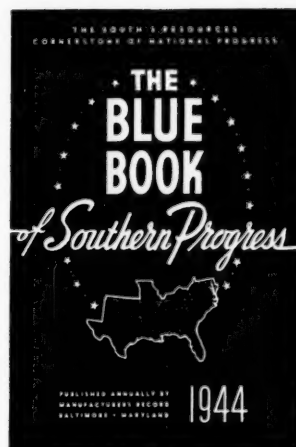
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more than ever,
you will need**



for reliable facts and statistics about every state in the South, their resources and progress, with a comparison of the South's growth and that of the Country.

Since so many sources of information have been cut off, the reference value of the forthcoming 1944 edition of the BLUE BOOK will be greater than ever. It contains facts to help get a clearer view of today's history-making accomplishments.

The pre-publication demand proves that it is indispensable to everyone concerned with the progress of our Country.

You will turn to this 1944 annual constantly for data on commerce, industry, mining, banking, population, education; and the part taken in the economy of the South and the nation.

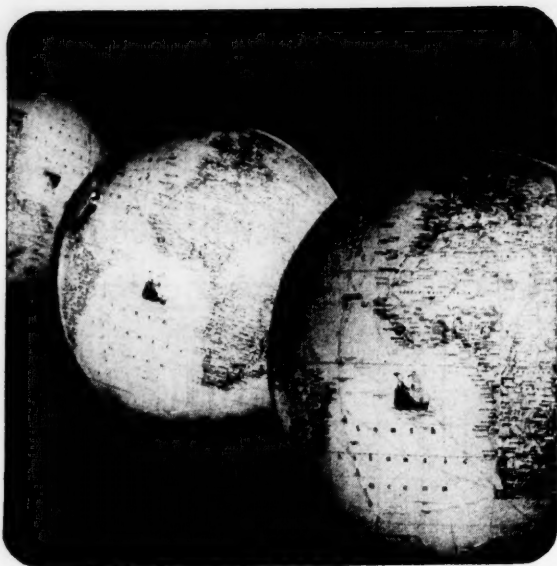
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Pre-publication price \$1.00 a copy.

After publication, if available, \$2.00.

MANUFACTURERS RECORD

PUBLISHING COMPANY
BALTIMORE 3
MARYLAND



New Worlds TO CONQUER IN 1945

Look out for suddenly issued orders that may quickly end much war goods manufacturing. Look for swift changes to many urgently demand peace-time products. Whenever, or whatever these changes may be, water in abundance will still be an absolute necessity.

Now is the time to check your needs for a thoroughly modern, quality built and ever dependable Layne Well Water System. You will want the best that money can buy; a water system that will last the longest, take less in upkeep cost and operate at a new low in economy.

Layne Pumps and Well Water System have a reputation that extends around the world. They are more widely used than any other make on the face of the globe. They are serving more cities and industries than all other makes combined. As a pioneer in both well installation and pump building, Layne has created, proven and uses exclusively the greatest number of major efficiency features.

Be prepared for the changes of 1945! Get the facts about Layne Pumps and Well Water Systems now. For new literature, or the counsel of an experienced Layne engineer, address Layne & Bowler, Inc., General Offices, Memphis, Tennessee.

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WELL WATER SYSTEMS DEEP WELL PUMPS

FOR CITIES, INDUSTRIAL PLANTS, RAILROADS,
MINES, AIR CONDITIONING, IRRIGATION PROJECTS

Little Grains of Sand

*"Little drops of water, little grains of sand,
Make the mighty ocean, and the pleasant land."*

The *New York Sun* has expressed our post election thought so clearly and concisely that we reprint it herewith:

"The job immediately ahead of us all is to support the administration insofar as we believe it to be right, criticize it when we believe it to be wrong, stand with it in a united front for the common cause of winning the war and establishing a just and lasting peace."

As of June 30, 1944, there were 428 functional units of the Federal government included in the three branches—Legislative, Executive and Judicial. Some of these units were created by statute, others by executive order, administrative order, presidential Letter, and some, like little Topsy, "just grew." It is noteworthy that FDR, who criticized his predecessor for, "Piling bureau on bureau, commission on commission..." and who was going to simplify the maze that is Federal government, created during his administration 212, almost half, of the 428 units!

A noteworthy feature of the recent political campaign was the number of subjects of front rank importance which were not debated. Government itself has become so complex and world affairs so complicated that few persons, even those whose professions require them to be well informed, can form intelligent opinions upon all the great matters that are to be determined. It seems to have been tacitly recognized and accepted that the masses of citizens can do little more than to choose those upon whom to confer enormous power.

The welfare of every family and individual in the land will be directly affected by the decisions still to be made. There was little or no campaign discussion of the world bank, of the stabilization of foreign currencies, of postwar lend-lease policies, of future world plans for aviation and communication, or even of reconversion programs. Apparently political leaders considered that it was hopeless to try to discuss topics of such character in terms that would be popularly understood.—(*Pathfinder, Washington, D. C.*)

Despite the fact that 41 states had filed briefs with the Supreme Court supporting the request of the South-Eastern Underwriters' Association's request for a rehearing of its original 4 to 3 ruling that the business of insurance is interstate commerce the Court has denied such a rehearing without comment.

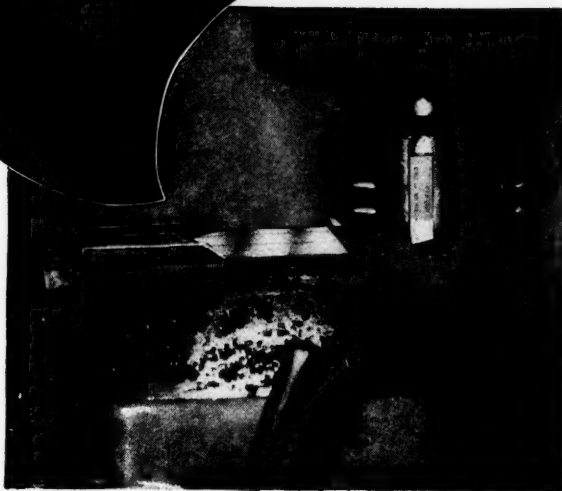
This decision places the responsibility for remedial legislation squarely up to Congress. If state regulation of insurance is to be maintained and their operations safeguarded by state laws, legislation specific

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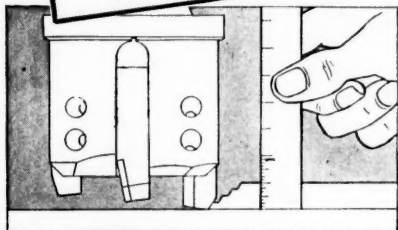
KENNAMILL STEP-CUTTERS

**A
Simplified Means
To Multiply
Milling Production
with Available
Equipment**



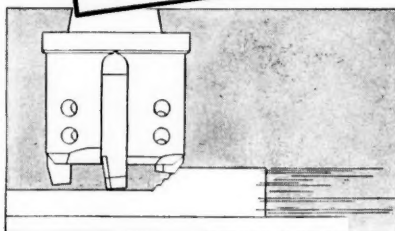
Kennamills are inserted blade fly-cutters that, in most cases, enable available horsepower to be fully utilized in chip removal.

**CUT DEPTHS UP TO 1/2"
(3/8" with the 2" cutter)**



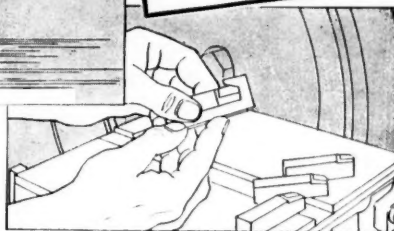
Desired depth of cut is divided into equal steps.

**FEED UP TO 25"/MIN.
(with modern milling machines)**



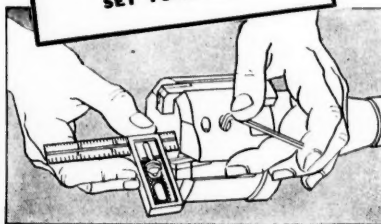
High rates of milling made possible on all commonly used steels.

**GRIND TO A
TEMPLATE**



Blades are resharpened to template on ordinary carbide tool grinder.

SET TO A SCALE



Grinding in the head is unnecessary.



FOR DECEMBER NINETEEN FORTY-FOUR

The 5-Week Miracle

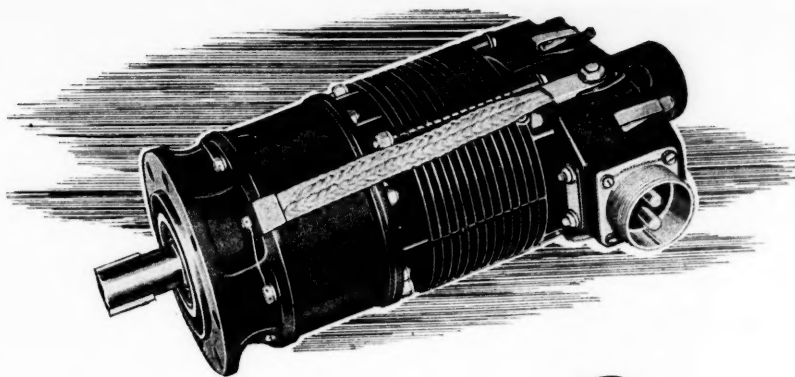
THAT *SH*



MANUFACTURERS RECORD FOR

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XUM



e T SPEEDS AID TO CHINA

CAN ENGINEERING SPEED LIKE THIS HELP YOU?

STRANGE contrast to China's teeming millions and primitive hills, the Superforts are speeding vital aid for a gallant ally. To a patient, long-suffering people, these sky giants symbolize freedom and new hope . . . and America poured forth many a miracle of ingenuity to hasten their coming. For example, when the original retraction motors used on the first B-29's proved inadequate to raise and lower the huge landing wheels, something had to be done—and in a hurry.

In three weeks, Jack & Heintz engineers designed and built a test motor for the job. Specifications called for 5,000 cycles of operation without

stop; the Jack & Heintz unit delivered 20,000. In two weeks more, *production* models were delivered for installation. Today, thousands of these Jack & Heintz motors are in service. This is only one of the 20 Jack & Heintz products used on the B-29.

This ability to solve a tough precision engineering and manufacturing problem quickly has been of great value in war production. It can be equally effective in attacking the complex technical problems that must be solved almost overnight if reconversion is to be speedy and successful.

★ ★ ★

Jack & Heintz, Inc., Cleveland, Ohio, manufacturers of aircraft engine starters, generators, gyro pilots, gyro flight instruments, magnetos, motors.



JACK & HEINTZ
Incorporated

THE B-29 STARTS LIFE IN A CAMERA'S LENS

A correspondent asks: "How can they make so many B-29 parts in so many different plants and still get a perfect 'fit' on the assembly line?"

Photo templates are the answer. In one of the big Boeing plants draftsmen draw details of the Superfortress on a series of master patterns. These are ARMCO Galvanized PAINTGRIP sheets—painted pale green.

PHOTOS ON STEEL

Next the master steel patterns are sent to the copying rooms. Negatives are made and a camera "shoots" the drawings on other PAINTGRIP sheets. These templates then go to sub-contractors in all parts of the country.

This method insures faster template production; reproductions are accurate to one-thousandth of an inch per foot; more Superforts to bomb Japan.

Here are six reasons why thousands of tons of ARMCO PAINTGRIP have been used for aircraft templates:

1. It has a protective galvanized coating.
2. The neutral phosphate coating on the zinc takes and holds paint.
3. It is smooth, flat and easy to work.
4. There is no flaking or peeling of paint along scribed lines.
5. There is no chance of error in copying.
6. Extra wide sheets are available.

Whatever you make of sheet steel that is to be covered with an attractive and durable paint or enamel finish, ARMCO Galvanized PAINTGRIP sheets are a wise choice. Let us show you just why. The American Rolling Mill Company, 3511 Curtis Street, Middletown, Ohio.



Checking contour of a body frame section



THE AMERICAN
ROLLING MILL COMPANY

(Continued from page 6)

ally removing the business of insurance from the legal realm of interstate commerce should be drafted and enacted at once.

According to reports banks are already vying with finance companies for instalment business. A recent survey by the American Bankers' Association shows that 90 per cent of the banks of the country expect to make consumer loans after the war. The Federal Reserve System is quoted, however, as saying, that present controls will never be fully relaxed and the days of the dollar-down and dollar-a-week purchases are over.

Paul G. Hoffman, chairman of the Committee on Economic Development and president of the Studebaker Company, predicts there will be 500,000 more persons self-employed at the end of 1946 than there were in 1940. Undersecretary Wayne C. Taylor, of the Department of Commerce, speaking on the importance of small business, predicted that service men and war workers who will want to open a retail store or mechanical shop or go into agriculture range up to 3,000,000.

It is true that the existence of exceptionally large volumes of savings will help support retail business in the postwar period, but it would be a mistake to assume that they will do so automatically. Savings are by nature static rather than dynamic. Goods will have to be well advertised and well sold if they are to lure the savings into spending.

A 68-page handbook, entitled "Federal Agencies," has been published by the Citizens' National Committee. It lists 428 agencies in detail, with a personnel exceeding 2,900,000. "Only when the agencies are so listed," comments an editorial writer, "does one begin to get an idea of the bewildering perplexity of the Federal Government of today. It has become so complex that it is impossible not only for any single private citizen to know what the Federal Government is really doing, but for any single mind within the Government itself."

In a referendum conducted among the membership of the International Typographical Union on October 25, the vote was 2-to-1 against conferring full striking powers on the Executive Council of ITU. Thus the members of ITU have demonstrated they don't want any union boss to have the power to destroy the death and old-age benefits that have been building for years, nor do they want a union boss to have the power to call them out on a strike, against their will.

- (1) The United States should adopt a policy of universal military training for young men in peacetime.
- (2) The schedule of military training should be

(Continued on page 12)



READYING THE "BIG INCH"

A tough Job licked with the help of **LINK-BELT *Silverlink* ROLLER CHAIN!**

Every minute this queer-looking contraption travelled 18 ft. along America's famed "Big Inch" pipe line, removing dirt, rust and mill-scale, applying a coat of primer and wrapping the pipe with a protective coating.

To do a vitally important job—and a tough, dirty job, thoroughly and quickly, the WKM Company developed this pipe-line cleaning machine, and selected Link-Belt Silverlink roller chains for the gruelling task of driving three separate operations. A drive of double width, 1" pitch chain operates the cleaning head at 400 r.p.m., a 1" pitch single chain, drives the priming head (through a reduction gear) at approximately 100 r.p.m., and 1" pitch

single width chain, drives the crawler wheels which move the machine along the pipe.

Out in the open, exposed to weather, dirt, and scale, these chains are demonstrating their ability to "take it," at the same time they are delivering power efficiently and without calling for any special attention.

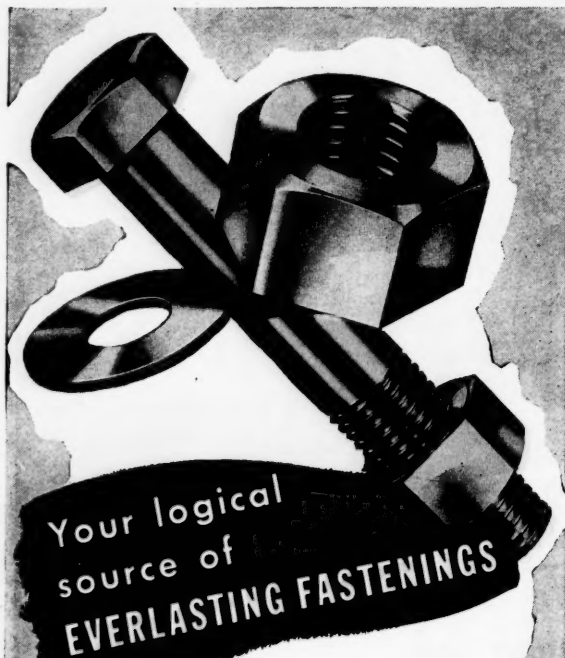
Link-Belt Silverlink Roller Chain may be the answer to your problem of economical, efficient, flexible application of power. Every r. p. m. is unfailingly delivered on long or short centers, either direction, over several shafts if need be. Link-Belt's unsurpassed experience and manufacturing facilities assure you complete satisfaction. Send for Data Book 1757 on Silverlink Roller Chain.

LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Toronto 8.

Offices, Factory Branch Stores and distributors in principal cities.

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Silverlink
ROLLER CHAINS



When you need non-ferrous and stainless bolt and nut products the logical source—the natural source—is Harper.

Specializing on Everlasting Fastenings

Harper specializes on non-ferrous and stainless bolts, nuts, screws, washers, rivets and accessories . . . is not concerned with common steel. The Harper engineering and manufacturing staffs are composed of men who have concentrated on the working properties and peculiarities of brass, copper, bronzes, Monel and stainless steel.

Ample Manufacturing Facilities

The plant houses hundreds of machines, some standard some special . . . machines for heading, forging and threading huge fastenings and small . . . all engineered to do the best job on non-ferrous and stainless alloys.

4360 Items in Stock

Harper maintains large stocks of a great variety of sizes and types of non-ferrous and stainless fastenings, many of which are considered "hard-to-get."

New Catalog Available

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HARPER
Chicago

(Continued from page 10)

flexible enough to assure minimum dislocation in the educational and business life of young men. (3) Upon completion of the required military training, trainees who do not enlist in the regular military organizations shall be enrolled in reserve components.

The decline of patents issued since our country declared war is a cause for concern. On a per capita basis, invention is 45 per cent below the pre-depression level. The reasons given are: (1) most of the scientists and engineers are working on war projects; (2) an army of 11,000,000 has absorbed thousands of young men who normally would be engaged in some invention-stimulating activity; and (3) the Government's policy of withholding from issue patents which may disclose information of value to the enemy. The disturbing factor, however, is that in spite of the large increase of industrial laboratories and the number of graduates of technical schools there has been a noticeable decline of patents issued per capita during the last 50 years. In 1918 there were 60,000 applications, whereas there are now less than half that number. A real slump in applications is said to have started in 1933.

Excessive taxation is not only a barrier that impedes the development of economic wealth; it can prevent the normal growth of cultural wealth as well. This is admirably illustrated by a paragraph from a recent article by the eminent author, James Truslow Adams. He writes:

"Recently I was asked to write a short history of the United States for use in English schools under the new rule making its study compulsory. What was the situation? The British Government would take 50 per cent of my royalties before they were transmitted to me. When the balance got here the Federal Government would take 62 per cent in taxes. I am working mostly to leave money to my family and the inheritance tax would be over 30 per cent more. So I did not write the book; the British Government got nothing, I got nothing; the English school children did not get the text I would like to have done and the Federal Government gets nothing. This is a personal commentary on national wealth and income as fixed amounts to be 'redistributed'."

A recent one-day strike by 30 crane operators cost 24,000 productive man hours of other workers, but the Bureau of Labor Statistics, counts only the 240 man hours of the 30 strikers as lost to war production. If the whole truth were known we would probably learn that strikes have cost us more merchant ships than have been sunk by the enemy; have kept hundreds of planes out of the skies; have deprived our Armies of enough tires to roll into Berlin, and have robbed them of sufficient ammunition to conduct a campaign of several months duration.

(Continued on page 14)

MANUFACTURERS RECORD FOR

TODAY—

Our entire organization is concentrating upon speeding Victory in the construction of Bombs, Ship Sections and other essential war production.

WHEN PEACE COMES—

Our enlarged facilities and our added personnel, will be better prepared to serve you than ever before.

This modern plant was financed entirely with company funds, without cost to the Government.

**BARS — SHAPES — STRUCTURALS
PLATES and SHEETS**

Any Quantity—Immediate Delivery from our Warehouse at 903 Third Avenue

SOUTHERN STEEL WORKS

KIRKMAN O'NEAL, *President*

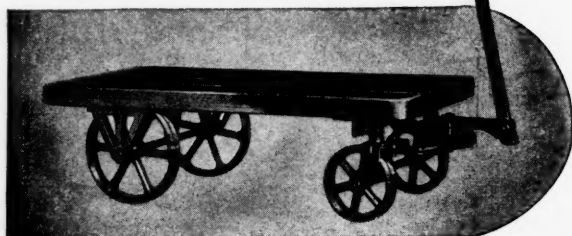
745 NORTH 41st STREET



BIRMINGHAM, ALABAMA



THOMAS TRUCK of Keokuk



THOMAS MAKES



4 WHEEL TRUCKS



2 WHEEL TRUCKS



CASTERS



RUBBER WHEELS

SAFETY WAGON

Heavy Loads, Sharp Turns—No Tipping

- Safety non-tip auto steer
- Full 90° turn without tipping
- Front wheels always support corners
- All steel welded construction
- Hyatt roller bearings—hardened races
- Two big capacities—3-ton and 5-ton
- Hand or trailer operation

Heavy loads are handled on this truck with complete safety. Wheels are located under and support each corner at all times, regardless of sharpness of turn. The auto-steer, caster type front assembly permits right angle turns and maneuvering in close quarters. Loaded trucks steered with efficient ease. The safety handle locks in upright position when not in use.

Write for new Catalog No. 43

THOMAS TRUCK & CASTER CO.

451 MISSISSIPPI RIVER, KEOKUK, IOWA

Easy to Operate Yes-Sparkler production filters

are built for practical operation — one complete, portable, air-tight unit that can be quickly and easily dis-assembled for cleaning and replacing filter aids of any kind.

Sparkler Filters purify or clarify any fluid of suspended matter in any quantity, using any filter aid that produces the finest results at greatest speed.

Write for Catalog for your specific product.

SPARKLER MFG. COMPANY

368 Lake Street
MUNDELEIN, ILLINOIS



(Continued from page 12)

Office of Price Administration has had another violent convulsion of some sort. After weeks of mental anguish the learned minds of OPA have decided that the following vitally important items shall be removed from price control: Toys sold to consumers for 10 cents or less; ceramic decorative tiles for use as table ornaments; costume jewelry made from seeds, pods, nuts or other natural vegetable products, except wood; canoes; hand-painted pictures; advertising thermometers; custom-made picture frames where no more than four frames are made to the same specifications for any one customer; Christmas decorations when made of natural vegetable products such as cones, berries, pods, leaves, etc.; shaving equipment made of precious metals (not including shaving equipment plated with precious metals); hand-decorated used bottles; ventilated outdoor window shelters, and cartridge case trimmers for use in hand-loading ammunition. Cost of this momentous decision to taxpayers has not been determined.

The spectacular expansion by cooperatives into production in 1943 overshadowed other developments in that year. According to the Cooperative League, some \$14,000,000 was invested in productive facilities of various kinds in this one year. By far the greater part of the money went into the purchase of petroleum refineries, pipe lines, and oil-bearing lands. Other acquisitions included a printing plant, a coffee-roasting plant, a cannery, a dehydration plant, a chemical factory, five sawmills, two feed mills, and a number of other plants related to agriculture and its products. These purchases were made almost entirely by regional wholesale associations, individually or in combination with other wholesalers.

To prevent misunderstandings and to avoid premature announcements of contract cutbacks and terminations the Office of War Information has ready for distribution a "cutback field guide." It is said to give in detail all steps to be taken in notifying contractors, employees and the public of production adjustments. Collaborating in its preparation were the War and Navy Departments, Maritime Commission, War Production Board, War Manpower Commission and Smaller War Plants Corporation.

The story of the creation of the world is told in Genesis in 400 words. The greatest moral code in the world, The Ten Commandments, has 297 words. Lincoln's Gettysburg Address was given in 266 words. OPA changes the price of cabbage seeds and gets out a bulletin of 2,500 words to tell about it.

Post-war plans are a dime a dozen. Everyone has one. And most of them base their elaborate prognostications on "capacity production." This nation has never achieved true capacity production and it is hoped, never will.



Plan today...

for your pipelines of tomorrow

Leading water works engineers are now preparing for peace with complete, detailed plans for new municipal supply lines. Judging from the blue-prints of the future, all indications point to a rapid residential and industrial growth of many cities and towns throughout the United States.

For many years Lock Joint Reinforced Concrete Pressure Pipe has been included in the specifications for the majority of all large diameter water pipe contracts and is playing an ever-increasing role in principal cities throughout the nation.

"Tailor-made" to fit the job, there is absolute assurance that strong, sturdy Lock Joint Pipelines are permanently immune to tuberculation and corrosion. City officials can de-

pend upon permanent high carrying capacity and low cost operation for a century of useful service. Look to Lock Joint Reinforced Concrete Pressure Pipe as your most economical and safest post-war investment.

Whether your project is large or small, for the present or the future, your 'phone call, telegram, cable or letter to any of our offices will bring a prompt reply.

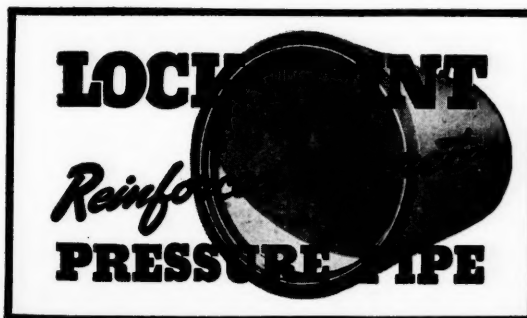
LOCK JOINT PIPE COMPANY

Established 1905

AMPERE, NEW JERSEY

Denver, Colo. • Chicago, Ill. • Kenilworth, N. J. • Kansas City, Mo. • Rock Island, Ill. • Joplin, Mo. • Valley Park, Mo. • Cleveland, Ohio • Hartford, Conn. • Navarre, Ohio

SCOPE OF SERVICES Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply Mains as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous lines.



the secret of the *silent* saboteur

The chemicals section had become the problem building of an otherwise model plant. In spite of minute inspections, the roof leaked. Rain water seeped through the ceiling, damaged equipment, disturbed temperature controls—ruined dispositions. Yet the roof appeared to be perfectly sound. The maintenance department swore to it. "Nevertheless," said the exasperated plant manager, "I want the opinion of an expert roofer—and before the next rainstorm . . ."

The expert roofer found the trouble. Acid gases, from a nearby vent, condensed, and dripped on the roof, destroying the waterproofing value of the roof membrane. The roof section was repaired and reinforced at the critical area. And the leak was no more!

In many instances, such as this, the roof itself

is not at fault. Experienced roofers know all the possible danger points, know how to locate obscure and hidden weaknesses—before disaster strikes.

Ask your local Barrett Approved Roofer to give your roof a thorough inspection. He'll check flashings, drains, masonry, skylights—all the sources of possible trouble. He and his trained staff can help



THE BARRETT DIVISION

ALLIED CHEMICAL & DYE CORPORATION

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you solve this important maintenance problem. He can supply practical advice and help, or make necessary repairs or replacements with minimum interference to your production schedules. Save time and money. Get in touch with him today, or write us direct.

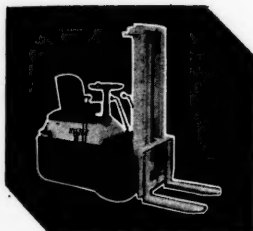
***BARRETT MATERIALS AVAILABLE FOR WARTIME NEEDS.** If you're building a new plant or reconditioning warehouses or other buildings, use dependable roofing materials and methods. Barrett Pitch and Felt are non-critical, and are readily available through your local Barrett Approved Roofer. Consult with him or with us on any roofing problems.

*Trade-mark Reg. U. S. Pat. Off.

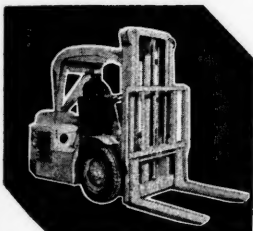


MANUFACTURERS RECORD FOR

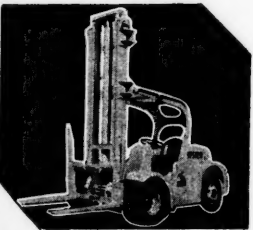
CUT PLANT COSTS ENGINEER YOUR POST WAR MATERIALS HANDLING PLANS TO USE HYSTER



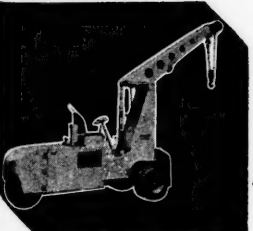
2000 lb. Fork Lift



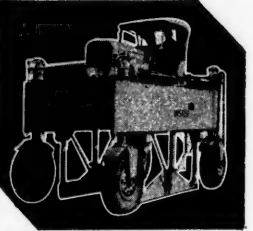
7500 lb. Fork Lift



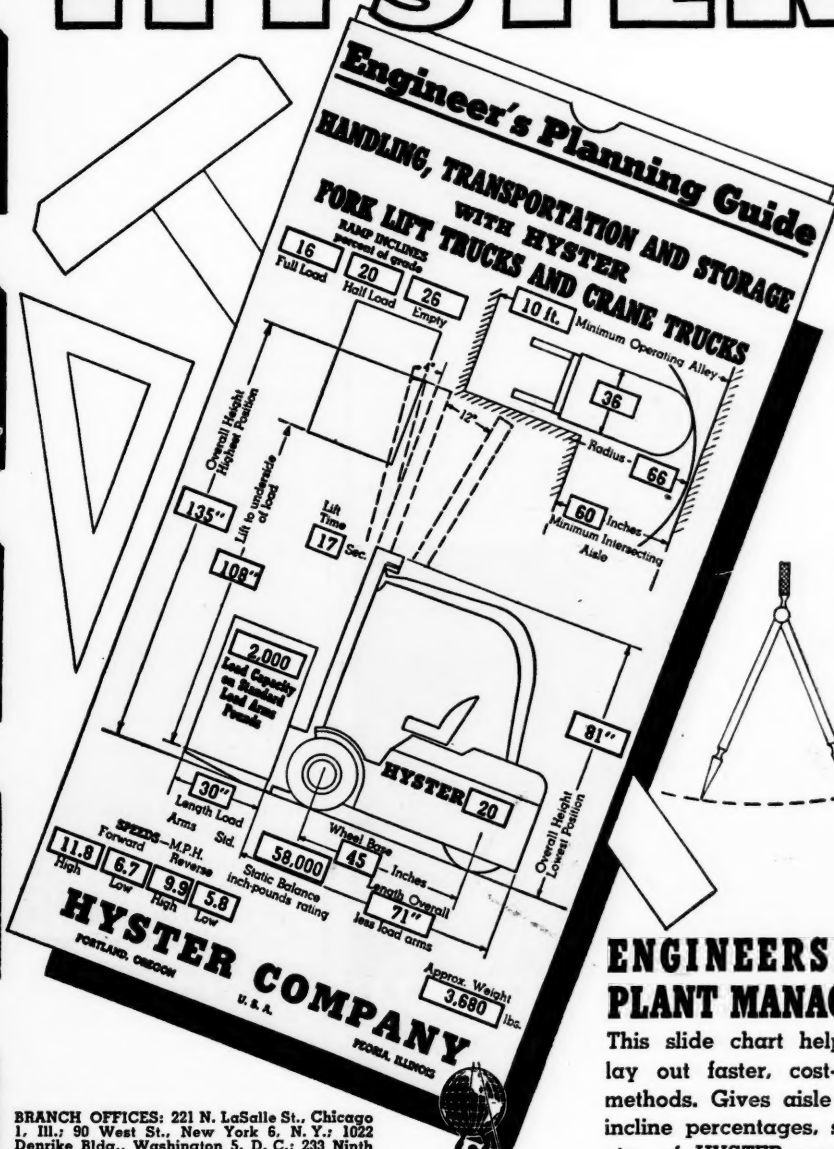
15,000 lb. Fork Lift



10,000 lb. Carry Crane



12,000 to 30,000 lb. Straddle



BRANCH OFFICES: 221 N. LaSalle St., Chicago 1, Ill.; 90 West St., New York 6, N. Y.; 1022 Denrike Bldg., Washington 5, D. C.; 233 Ninth St., San Francisco 3, Calif.; Masonic Bldg., New Orleans 12, La.; 2724 First Ave. South, Seattle 4, Wash.; 2700 Santa Fe Avenue, Los Angeles 11, Calif.; 215 Euclid Ave., Cleveland 14, Ohio; 211 Farnsworth Bldg., Memphis 3, Tenn.

ENGINEERS and PLANT MANAGERS

This slide chart helps you lay out faster, cost-cutting methods. Gives aisle width, incline percentages, speeds, etc., of HYSTER pneumatic tire trucks . . . Send for your FREE GUIDE.



HYSTER COMPANY

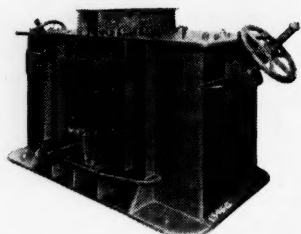
2973 N. E. Clackamas - Portland 8, Oregon

1873 North Adams - Peoria 1, Illinois

DECEMBER NINETEEN FORTY-FOUR

17

"PENNSYLVANIA" IMPACTORS



IMPACTORS are designed for reducing Silicious Ores, Furnace Refractories and a wide range of Industrial Minerals, Chemicals, Steel Turnings, etc. IMPACTORS have unusually large reduction ratios.

THESE IMPACTORS are cageless and the impact-batting in mid-air crushes against a series of powerful anvils. With no cage to hold it, out goes the feed with no attrition rubbing.

ENGINEERS prefer "cubed" products for roads and concrete. IMPACTOR reductions are distinctly "cubing" with relatively few "spalls" or "flats."

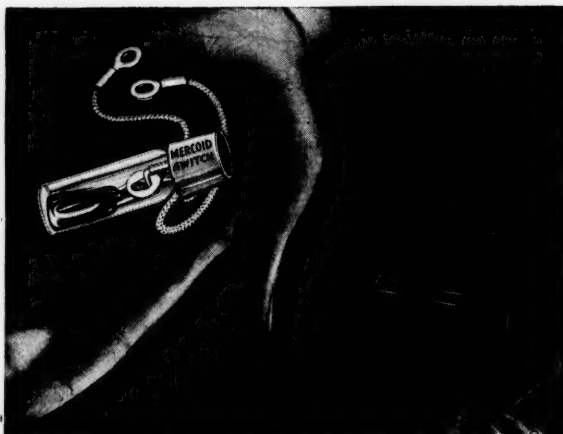
AN EXCLUSIVE advantage is their reversibility.

POWERFUL, SIMPLE IN CONSTRUCTION, FEW WEARING PARTS, ALL HIGHLY ACCESSIBLE.

Bulletins and full information available for responsible inquirers.



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Offices in Principal Cities
Associated with Fraser & Chalmers Engineering Works, London, England.



AN UNFAILING ADVANTAGE

All Mercoid Controls are equipped exclusively with hermetically sealed mercury switches of special design and critically selected materials. Mercoid mercury switches are known the world over for their dependable service. They are not affected by dust, dirt or corrosion; nor are they subject to open arcing with its attendant consequences of pitting, sticking or oxidized contact surfaces, all of which, are likely to interfere with normal switch operation. That is why among other things, Mercoid Controls on the whole give you assurance of better control performance and longer control life—a distinct and unfailing advantage—the reason why they are also the choice of America's leading engineers for many important wartime industrial applications.

*** MERCOID CONTROLS ***
FOR HEATING, AIR CONDITIONING, REFRIGERATION, AND VARIOUS INDUSTRIAL APPLICATIONS.
THE MERCOID CORPORATION, 4225 W. BELMONT AVENUE, CHICAGO, 41, ILL.

World's Longest Gas Line Rushed Thru, Speeds War

The Tennessee Gas and Transmission Company's natural gas pipe line, the longest of its nature in existence, has been in operation slightly more than a month, and indications are it is doing a tremendous, vitally important job with quiet efficiency.

The 24-inch line, traversing 7 states, equals "Big Inch," the world's greatest oil pipeline, in girth and exceeds "Little Inch," second greatest oil avenue, by 4 inches.

"Big Inch" pumps an average of 316,120 barrels of crude daily over a distance of 1,363 miles; "Little Inch" delivers 180,594 barrels per day, while the Tennessee Company's gas line transports to the heavily industrial Pittsburgh-Youngstown-Cleveland area the walloping total of 200,000,000 cubic feet of natural gas daily. The gas is boosted and shoved along some 1,265 miles from the Texas fields.

Originally, the Tennessee Company's idea was to supply natural gas to restricted areas of Tennessee and Alabama, but the War Production Board stepped in with a "request" so worded it had to be met. "The new line," said the Board, "must be completed in time for operation during the winter of 1944-45 in order to prevent interruption to war production that would otherwise occur."

The line was completed by the appointed day, war production was unimpeded, but it took a lot of sweaty doing. The Chicago corporation, which controls gas reserves in Texas in excess of 2 trillion cubic feet, undertook to finance the critical, expanded project, buying 90% of the common stock of the Tennessee Gas and Transmission Company.

Engineers, beset enough by dwindling time, found impish nature aligned against them as well. No native along the line's course between Corpus Christi, Texas, and Cornwell, West Virginia, had seen such floods and swollen rivers in 37 years. But after the first pipe was welded on January 10, 1944, the work went ahead despite the element's worst. The final tie-in weld was made last October 30th on the east side of the Buffalo River in Perry County, Tennessee, and the War Production Board's "request" had been met with a moment or two to spare.

Thus, in five-sixths of a year's actual construction work, there was put into operation a stupendous engineering project needed in a hurry. Sixty-seven rivers and streams were crossed, 274 highways and 62 railroads were buried under, a ditch blasted through rock for approximately 364 miles, and 700 miles of forest and heavy undergrowth were conquered.

So today, a 24-inch pipe stretching 1,265 miles delivers 200,000,000 cubic feet of natural gas daily to keep the industrial East humming with war production, just as WLB wanted it.



**WE HAVE THIS TO SAY ABOUT
THE ALUMINUM INDUSTRY**

Vastly increased aluminum production for war has made scores of fabricators and thousands of workers familiar with the workability and characteristics of aluminum.

We welcome competition in the aluminum industry.

These new fabricators and workers will help in the biggest task ahead—to find markets to consume a substantial portion of the nation's vastly increased aluminum productive capacity.

For more than fifty years, we have been carrying the responsibilities of research, development and distribution in pioneering this light, strong, versatile metal.

All of these years of experience were invaluable

in expanding the output of aluminum to meet tremendous war needs. And we are grateful that we were prepared to give this "know-how" when our country needed it most.

Now, with others to seek new applications—to perfect new fabricating processes—to join us in proving what aluminum can do—we see ahead even greater demands for the advantages of aluminum in building a better world.

To bring the advantages of aluminum to the greatest number at the lowest cost, Alcoa's 56-year-old research program will continue with its same broad and deep objective of developing sound facts upon which all users may rely. ALUMINUM COMPANY OF AMERICA, 2109 Gulf Building, Pittsburgh 19, Penna.

ALCOA ALUMINUM



DECEMBER NINETEEN FORTY-FOUR

PLANNED MATERIALS HANDLING... goes hand in hand *with* **PLANNED PRODUCTION**

LET'S complete the program
of making skilled workers
of the remaining "unskilled".
Let's do it **NOW!**

Thereby reducing our cost
and leading the way in the
post-war world.

This Clark Fork Truck and
it's operator release ten men
for productive work.

*"Unskilled labor adds nothing
to a product except cost."*

CLARK TRUCTRACKTOR
BATTLE CREEK, MICHIGAN, U.S.A.

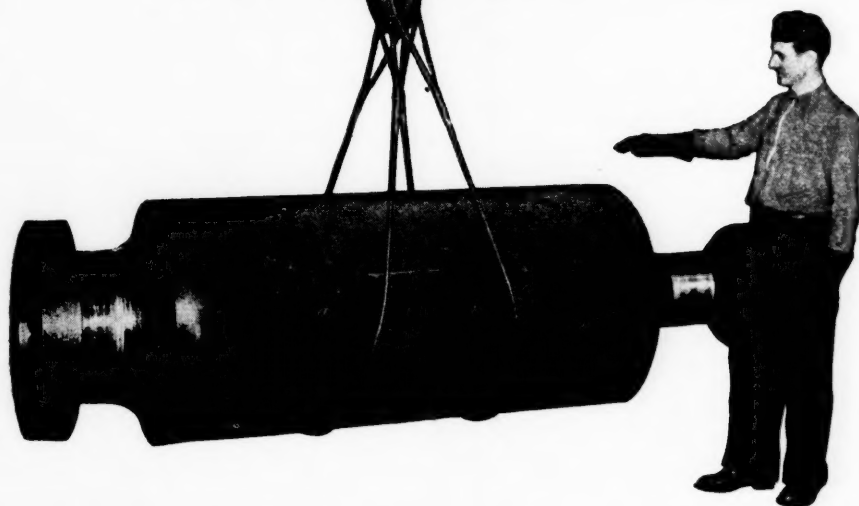


OTHER CLARK PRODUCTS — AXLES (Front and Rear) FOR TRUCKS AND BUSES • AXLE HOUSINGS • TRANSMISSIONS • METAL SPOKE WHEELS
ELECTRIC STEEL CASTINGS • GEARS AND FORGINGS • RAILWAY CAR TRUCKS • BLIND RIVETS • HIGH SPEED DRILLS AND REAMERS

in Wire Rope language

PURPLE STRAND

means **STRENGTH**



Easy does it. Looks pretty simple, the way that big forging settles down on the plant floor without so much as a jolt.

It's a neat bit of teamwork involving the crane, the operator's skill, and the rugged wire ropes that raise, lower, and handle the load. It's one of those jobs for which Bethlehem Purple Strand rope is particularly recommended.

To qualify for heavy lifting work of this nature, wire rope naturally must have great strength—the kind of strength that is obtainable only from a combination of fine steel, close metallurgical controls, and expert workmanship. In addition, the rope must be sufficiently flexible to wind easily on drums and to operate smoothly on sheaves.

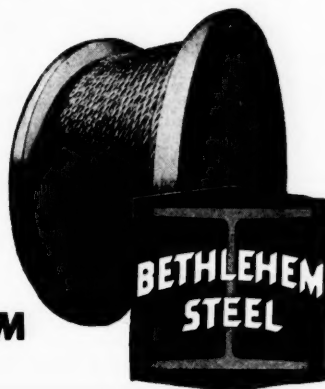
These are Purple Strand characteristics, and they

are qualities that enable crane operators to handle giant loads with confidence. One reason for Purple Strand's uniformly high standard is the fact that it's 100 per cent Bethlehem . . . for Bethlehem controls every single step of its manufacture, from the mining of the ore to the spooling of the finished product.

That's important, in a product with the responsibilities of wire rope. That's why Purple Strand is as rugged and durable a rope as you can buy anywhere.

When you think WIRE ROPE

. . . think BETHLEHEM





PROMPT DELIVERY
IN THREE SIZES TO
MEET GOV'T SPEC:
1", 3", 1/2".

MARK IT RIGHT TO REACH THE FIGHT

Stencil-Marking is the required type of marking for all war shipmen's. Marsh-Stenciling will save you up to \$600 annually in shipping room costs. To use, just cut a stencil, stroke with a Marsh Stencil Brush and your shipments are legibly, permanently addressed, and assured of prompt delivery. Write for free booklet, prices.

MARSH STENCIL
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55 MARSH BUILDING
BELLEVILLE, ILL., U.S.A.



MARSH

New Process Eliminates Spinning From Cotton Use

Textile processing is being subjected to so many innovations lately (see MANUFACTURER'S RECORD, November, Page 24) that befuddled textile men, completing one change only to find another desirable, are justified in asking, what next?

The latest development is perhaps the most revolutionary. In turning raw cotton into thread, yarn and cord, spinning has been eliminated! This spinless technique is no laboratory curiosity. It is in mill production.

The American Association of Textile Chemists and Colorists heard about it from H. M. Chase, director of the Research Division of the Riverside and Dan Cotton Mills, Riverside, Va.

The new process starts with the same raw material, a long, fluffy, white strand of cotton fibers known as a roving. Instead of spinning the roving, it is "squeezed" and given a chemical treatment at the same time. As a result, the new thread, it is claimed, is stronger, while smaller in size and cheaper to make.

The new process depends upon taking fuller advantage than spinning of a very slight natural twist of the single hair of cotton, a fiber about an inch longer and 1,000 times longer than its diameter. This twist is about one-fifteenth of a full turn, and to which the fiber owes much of its strength.

Spinning, this latest innovator asserts, has never taken advantage of more than one-third of the natural strength in cotton; for instance, if a one-inch cotton rope could utilize the entire strength of its fibers, it could hold up a 50-ton tank.

In spinning, the cotton strands are twisted around each other to gain strength, but this gain of strength has a definite limit. With too much twisting the fibers cut one another.

The new process leaves the fibers untwisted, in the nearly parallel position they held in the original roving. In the process, the roving is pulled longitudinally, the slight stretch applied causing the naturally-twisted fiber to curl slightly against its neighbor and thus getting a firm grip upon it. The synthetic chemical treatment, when the cotton is compressed to thread or yarn size, "glues" it to that size.

Short staple cotton, America's largest crop, when given the new processing, is as strong as spun long staple, it is claimed. Long staple is strengthened proportionately.

The result: If a roving has the original strength of 14 pounds, spinning gives it 18 1/4 pounds and the new process 23 1/4 pounds.

Mr. Chase claimed the new cotton yarn can be made soft and flexible or hard as wire, and that new developments offer thousands of synthetic resins that can be used in this process for producing colors, mildew- and fire-proofing and many other special properties desirable in textiles.

1905 **Strand** 1944

**FLEXIBLE SHAFT
and
MACHINES**

Vertical
Three Speeds
Up to 1 1/2 HP

One Hundred Twenty-five Types and Sizes

1/2 TO 3 H. P.

ON TO VICTORY

SEND FOR
CATALOG

Swivel Yoke
Types—1/4 to 1 1/2 HP.

**High Speed
Steel
Rotary
Files
and
Grind
Cutters**

Our thirty-ninth year in this
industry.

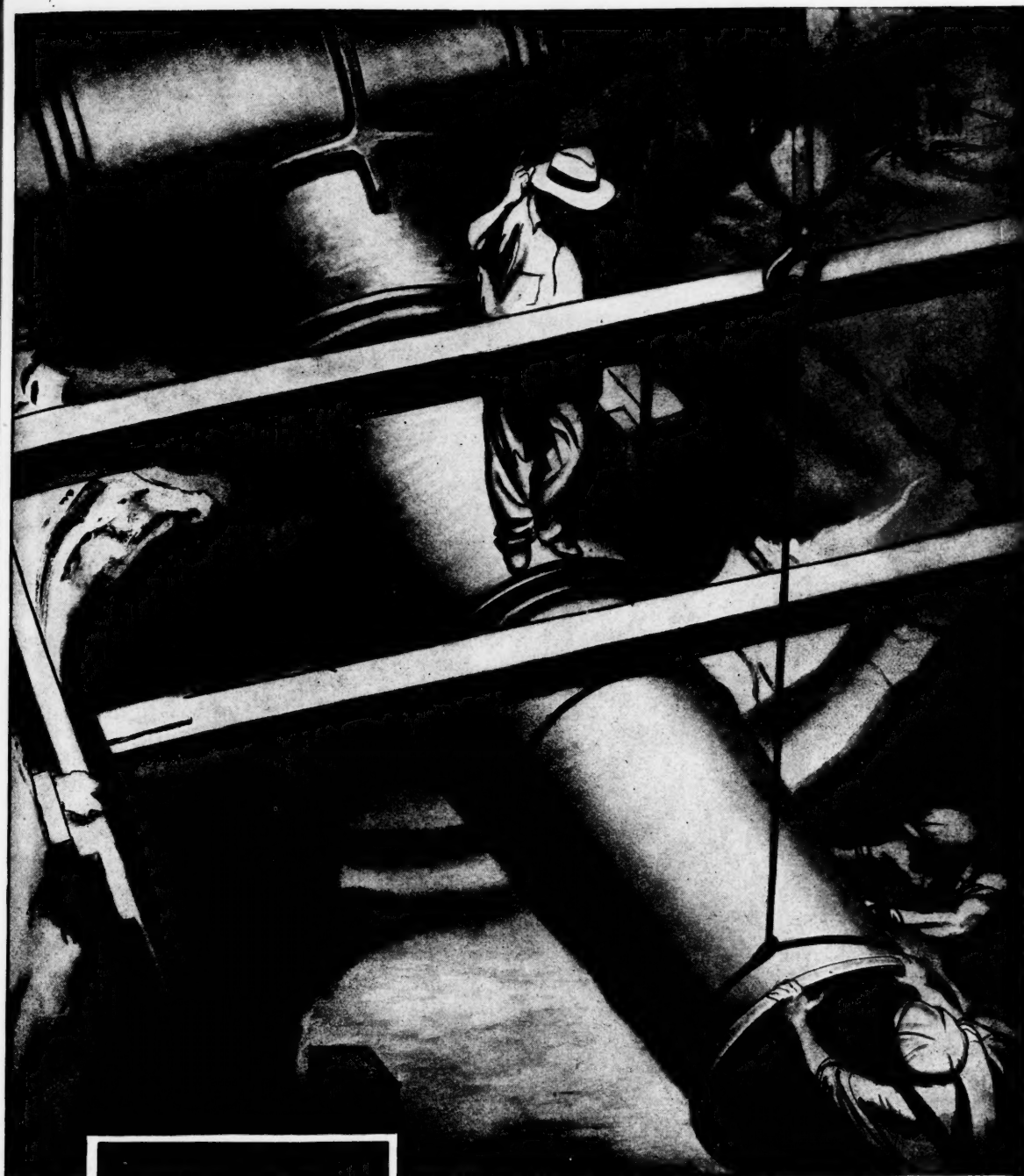
The Largest Exclusive Flexible
Shaft Equipment Manufacturers.

QUALITY MACHINES ONLY

N. A. STRAND & CO.

CHICAGO, ILL.

ZONE 40 5001 NO. WOLCOTT AVE.

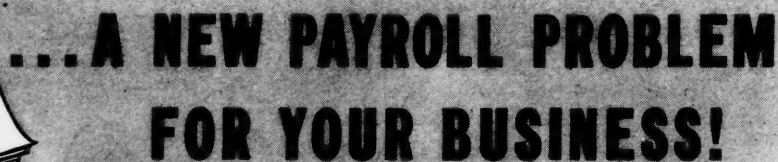


Large diameter fittings installed for pumping station.
 Drawn by Rico Lebrun for U. S. Pipe & Foundry Co.

U.S. cast iron PIPE

U. S. PIPE & FOUNDRY CO.
 General Offices: Burlington, N. J.
 Plants and Sales Offices throughout
 the U. S. A.

If you have a problem in connection with the design of special fittings or castings we can help you. One plant specializing in the manufacture of fittings—special castings foundries at our other plants—a competent technical staff—and 44 years of experience—are at your service. Our equipment for casting and completely machining special castings in large sizes is exceptional and extensive.



To help you overcome present payroll writing difficulties and avoid new ones, Burroughs offers a comprehensive new study, "Payroll Peaks," packed with constructive suggestions. Burroughs also offers help in computing employees' withholding taxes on and after January 1, 1945, in the form of government-approved withholding tax tables for weekly, bi-weekly, monthly and semi-monthly payroll periods. You will get much benefit from these latest Burroughs helps. Send for them today.



WITHHOLDING TAX TABLE—MONTHLY

WITHHOLDING TAX TABLE—SEMMONTHLY

WITHHOLDING TAX TABLE—BIWEEKLY

WITHHOLDING TAX TABLE—WEEKLY

Name _____
Company _____
Street _____ City _____

MAKE ANY DRILLING JOB in any position EASIER with this *Pressure Handle* on a **SKILSAW DRILL!**

NO NEED TO PUSH...
JUST TURN THE HANDLE
WHILE DRILLING

MAKES DRILLING EASY
IN AWKWARD POSITIONS

• Now you can drill with *extra ease and extra safety* in any position... head-high, overhead or on ladders... by simply attaching this Pressure Handle to your SKILSAW DRILL or any make of drill. Pressure Handle gives the operator complete control of drilling pressure at all times... eliminates twist drill breakage... saves the time of an extra man with ropes or chains to hold the drill.

Fits SKILSAW DRILL Models "64", "80", "82", "83", "101", "103", "121", "123", "141", "143", and all other makes of electric or pneumatic drills of from $\frac{3}{8}$ in. to 1 in. capacity in steel.

**Sold Nationally Through
Skilsaw Distributors for \$30.**

Ask your distributor today for a demonstration of this Pressure Handle on your own work.

SKILSAW, INC.

5033-43 Elston Ave., Chicago 30, Ill.
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GREATER SAFETY WHEN
DRILLING OVERHEAD

SKILSAW PORTABLE ELECTRIC **TOOLS**
MAKE AMERICA'S HANDS MORE PRODUCTIVE

Air power

ADVANCED, IMPROVED DESIGN — both inside and out — gives Quincy Compressors their greater over-all efficiency. Cooling area is increased 12%. Construction is simplified. Lubrication is more thorough . . . more positive.

Complete range of sizes from 1 to 80 cu. ft. displacement. Air and water cooled models. For 22 years Quincy has made air compressors exclusively. This accumulated experience provides good reason to call in a Quincy specialist while your production plans are in early stages. Write Dept. R-12

QUINCY COMPRESSOR CO.
Quincy, Illinois
Branch Offices: New York • Chicago
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COMPRESSORS



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SPRAYING
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PUMPING
DRIVING
CONTROLLING
FILLING
PRESSING
AGITATING

Railroads Meet Acid Tests Of War Despite Troubles

The job the railroads have done and are doing in this war seems incredible, but the facts are there. Regardless of what strain has been put upon them, the freight and human cargoes have been delivered where wanted with a minimum of tardiness.

Inadequate equipment and often personnel have somehow been made adequate. Railroads are carrying virtually double the load of the First World War and—here's where provable facts are needed to banish scoffing—are doing it with one-fourth fewer freight cars, one-fourth fewer passenger train cars, and one-third fewer locomotives. The reduction in freight cars alone amounts to about 600,000 units.

The traffic has been handled without serious car shortages, loss of production time at factories, or spoilage of foodstuffs for want of rail transportation. The seeming impossible, to adapt a now popular slogan, has taken the railroads no longer.

As one report put it: "Today, after almost three years of handling the constantly mounting war load in a manner satisfactory to everyone, the old Iron Horse may be puffing and blowing, but he is still going strong and showing no signs of faltering."

In the first half of 1944, as compared with the same period in 1939, there were increases of 153.4% in revenue ton-miles, 114.5% in ton-miles, 350.3% in passenger-car miles, and 223.2% in the amount of freight moved by rail to ports for export.

Despite this unprecedented movement of export freight, all ports are open and free of congestion. In September, when the record average of 5,659 cars of export freight were unloaded at the ports daily, the amount on hand awaiting unloading was less than five days' supply.

One of the most serious problems facing the railroads is the handling of passenger traffic. Excluding commutation travel, railroads in the first half of 1944 carried 21,854,000 more passengers than during the same time in 1943. Passenger miles increased 7,401 million.

"The total revenue passenger miles," the report quoted above added, "including commutation, for the first six months of 1944 were 4% greater than for the entire year of 1920, which was the peak prior to this war."

This commendable achievement has been written into the records despite financial troubles also. "With the alarming decrease in net income," said a prominent railroader, supporting a plea for rate increases, "... it is only a question of time before the railroads as a whole will show a deficit, or at least that the net income will be so small as not to properly support the financial structure. The result will be a very much less effective operation, and a serious impairment of the railroads' ability to render the . . . service the public has a right to demand."

TISSUE TIPS by VICTORIA

WHEN I GET BACK TO MY DESK
IN THE PURCHASING DEPT—



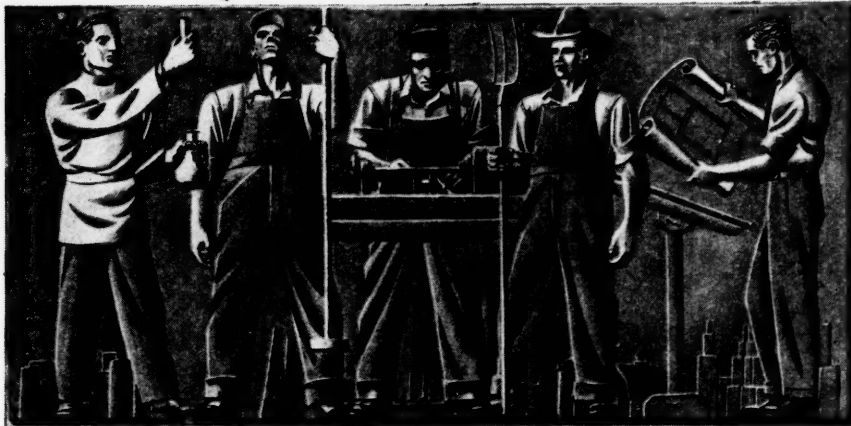
I'LL ALWAYS SPECIFY
VICTORIA!



Specify VICTORIA TOILET TISSUES

Single Fold, Double Fold or Black Core—for dependable quality.
Victoria Paper Mills Co., Fulton, N.Y. Craftsmen in paper-making since 1880.

THESE Mighty Manpower



★ DOWN SOUTH

Southern manpower is abundant—so abundant that vast surpluses supply the great industrial centers of the nation. Southern manpower is congenial and quick to learn—with nine Southern states having ninety-nine per cent native born population. Southern manpower is strong and healthy, thanks to the year-around power of the Southern sun. And during war years, vast segments of Southern manpower have acquired invaluable new technical skills.

Already industrialists are demonstrating the advantages of combining the South's great reserves of

manpower with vast natural resources. Southern forests, farms, mines, oil fields, water power and manpower give to industrialists every element for successful operation—a set-up of self-sufficiency unequalled in any part of our nation.

Future Southern industrial activity will require a Delta Air Lines of greatly expanded range and capacity. But Delta's sights were long ago raised to the level of future Southern needs—with extended routes, swifter planes and finer service already planned in full detail.

THE AIRLINE OF THE SOUTH... SERVING A LAND OF POWER AND PROMISE



DECEMBER NINETEEN FORTY-FOUR

27



Who Has the Quick "WORD'S-EYE" View?

That's easy to see. For even the magnifying glass is apt to fail when carbons are faded and blurred. It is just such records that sacrifice speed and accuracy.


And unreadable records have no place in business today. Not when Uarco **continuous-strip** forms give you a quick "word's-eye" view of the what, where and when of every business transaction at a glance . . . record forms with fresh carbons that assure legibility on every copy. Thus *one* person at *one* writing can lessen the possibility of errors all along the record route, from buying to billing.

Uarco **continuous-strip** forms are scientifically designed to meet individual record-keeping problems


. . . to eliminate repetitive actions and time-wasting getting-ready-to-write operations. Uarco records are made for either handwritten or machine-written use. They may be carbon interleaved or non-interleaved; may be used in a Uarco Autographic Register, typewriter, billing or tabulating machine.

For over 50 years, Uarco has been designing better business records. If you have a record-keeping problem, why not call in Uarco? It will cost you nothing to have a Uarco representative call on you today.

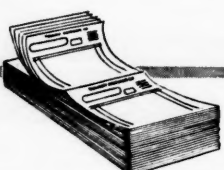
UNITED AUTOGRAPHIC REGISTER COMPANY
Chicago, Cleveland, Oakland • *Offices in All Principal Cities*




AUTOGRAPHIC REGISTERS



SINGLE SET
FORMS



CONTINUOUS-STRIP FORMS FOR
HANDWRITTEN • TYPEWRITTEN • BUSINESS MACHINE RECORDS

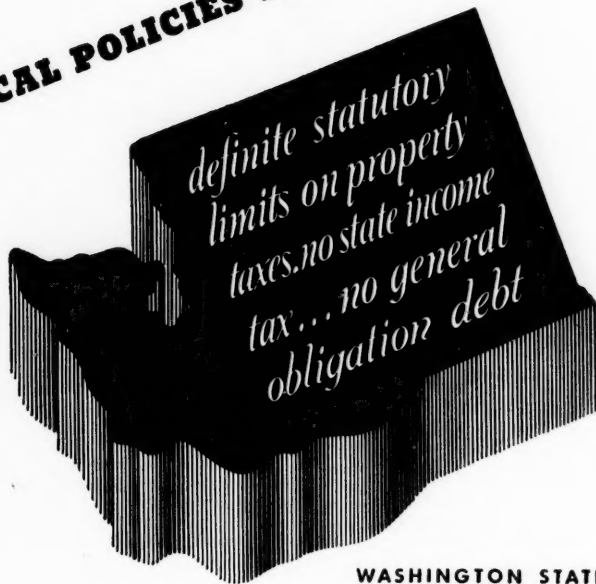


UARCO

BETTER BUSINESS RECORDS

NEW INDUSTRY

TAXES AND FISCAL POLICIES THAT ENCOURAGE



WASHINGTON STATE
the New Cornerstone

Washington State's economy is a sound economy, founded on principles conceived by a wise and a progressive people — principles which encourage establishment of post-war industry.

Definite statutory limits on property taxes . . . No state income tax . . . No general obligation debt . . . a large cash surplus in the State Treasury . . . These are a few of the reasons why far-sighted business men throughout the nation are looking westward — why they are looking in their post-war planning toward the State of Washington, where taxes and State financial policies encourage Industry!

WASHINGTON
The New Cornerstone

PACIFIC POWER & LIGHT COMPANY
THE WASHINGTON WATER POWER COMPANY
NORTHWESTERN ELECTRIC COMPANY
PUGET SOUND POWER & LIGHT COMPANY

Business-Managed Electric Companies. Serving Low Cost Electricity to More Than 370,000 Homes, Farms, Businesses and Industries in the State of Washington.

WASHINGTON—THE STATE—HAS

Everything!



LOW TAXES AND CONSERVATIVE FISCAL POLICIES—definite, statutory limits on property taxes . . . no state income tax . . . no general obligation debt.



INDUSTRIAL SITES AND HARBOR FACILITIES—abundant industrial building sites on harbors, trackage and highways; available dock, terminal and warehouse facilities, anchorages, etc.



UNEXCELLED TRANSPORTATION FACILITIES—by land, sea and air . . . in all directions . . . deep-water harbors.



GATEWAY TO THE GREAT POSTWAR PACIFIC MARKETS—the Orient, Alaska, Russia, Canada, South America.



ABUNDANT, CHEAP HYDROELECTRIC POWER FOR INDUSTRY—vast, interconnected hydroelectric systems.



SKILLED LABOR—intelligent, responsible, fair in its dealings with management.



DIVERSIFIED AGRICULTURAL PRODUCTION—fruits, grains, livestock, vegetables, dairy products.



IMMENSE SOURCES OF RAW MATERIALS—minerals, timber, fuels, water power, etc.

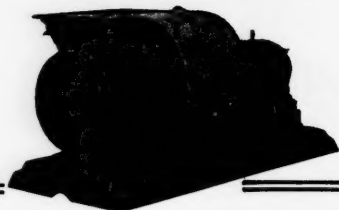


PLEASANT LIVING—a temperate, healthful climate, ideal for both working and living.



NUMEROUS BASIC INDUSTRIES—provide materials for processing.

★ **ALERT** Producers are **AMERICAN** users



AMERICAN Crushers are proving to thousands they are designed to produce efficiently under the stress of war production.

You can be sure of continuous production with low maintenance cost, high output and low power consumption with **AMERICAN**.

Write for catalog or special data.

AMERICAN PULVERIZER CO.
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THOUSANDS of men in industrial plants, mines and mills all over the country are doing just what this man is doing. They are cutting costs by repairing conveyor belts with Flexco HD Rip Plates.

WRITE TODAY FOR BULLETIN F-100 that shows how easy it is to repair rips, to strengthen soft spots and to put in patches by using Flexco HD rip plates. The bulletin also shows how to make tight butt joints in both conveyor and elevator belts with Flexco HD Belt Fasteners. These fasteners are made in six sizes. Furnished in special analysis steel for general use and in various alloys to meet special conditions.

FLEXIBLE STEEL LACING CO.
4690 Lexington St., Chicago, Ill.



FLEXCO HD BELT FASTENERS
Sold by supply houses everywhere

Better Weather Forecasts Of Greater Aid To Business

Mark Twain's tart observation about the weather, once so apt, would need paraphrasing today. Everyone talks about the weather, especially business men who more and more are learning how to turn its whims to advantage, and many clever people are doing something about it.

Weather "guessing" has advanced multifold since the days when the thickness of a wild animal's fur foretold the nature of the coming winter and the curiosity of a sleepy groundhog indicated when spring would show up. Nowadays such other-world devices as radiosonde, theodolites and even radar and rockets are among the (divining) rods of weather men.

From 65 stations scattered throughout the nation, helium-filled radiosonde balloons soar aloft at precise intervals. An operator, using a theodolite, watches each one as long as conditions permit, checking wind velocity and direction. The balloon, about the size of a fan dancer's, carries automatic broadcasting equipment which sends back to an automatic receiver data on temperature, humidity and barometric readings at all levels up to and including the stratosphere. The combined nationwide reports, evaluated in the light of known weather habits, enable forecasters to predict coming conditions with a startling degree of accuracy.

But theodolites are of little value on overcast days when static often garbles the radiosonde's chatter. In postwar days, radar will follow the balloon through the densest atmospheric conditions. Higher radio frequencies will clarify the messages from aloft. A rocket enthusiast is working on one to carry instruments to still loftier heights.

A closely guarded wartime secret is the determinations made at Harvard's coronagraph observatory 11,400 feet up on Fremont Pass near Climax, Colorado. There patient scientists are studying the relationship between the sun's weather and ours. Their findings are expected to add much, or at least to remove one strongly-held theory, to our foreknowledge of the antics of weather.

Weather men, however, are not trying to fool anyone. Almanacs notwithstanding, they offer no guarantees of omniscience, merely doing the best they can. Their degree of error up to about 5 days is very slight.

That is good enough for provident business men. One construction outfit saved a million dollars by simply knowing when to pour concrete. Mail order houses know that bad weather in a section will bring a flood of orders from there. The rural people, kept indoors, rummage through catalogs and make out put-off orders. On a cold day, the neighborhood soda fountain will lose "coke" sales, while the next-door lunch counter will gain coffee trade.

All businesses have a stake in the weather, and through scientific effort its whimsical nature is becoming predictable.

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XUM

Room to grow is a vital consideration in your planning for industrial development in the era of peace that lies ahead.

Norfolk and Western territory offers the strong advantage of plenty of room to grow in the vast, strategically located region that extends from the Midwest to the year-round, ice-free Port of Norfolk, Va., and midway between the North and South — plus these other essentials to sound, industrial progress:

An abundance of raw materials — huge reserves of all-purpose bituminous coal, limestone and numerous other minerals. Extensive forests and many rivers. Quick access to the nation's markets over the fast, efficient rail system of the Norfolk and Western. Intelligent native labor. A friendly tax policy. Ample power. Excellent living conditions in a climate without extremes.

In short, here is a territory that has what it takes for most types of industry — plastics, textiles, heavy chemistry, wood-working and agricultural by-products, just to name a few. If you are planning to establish a new industry, relocate, or expand, then by all means, investigate the advantages of Norfolk and Western territory — where there is plenty of room to grow.

* * *

For detailed information, write: Industrial and Agricultural Department, Norfolk and Western Railway, Roanoke 17, Virginia.

Room to Grow

Norfolk and Western

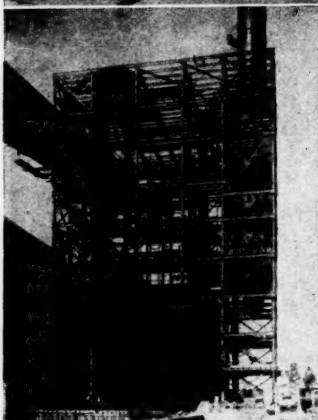
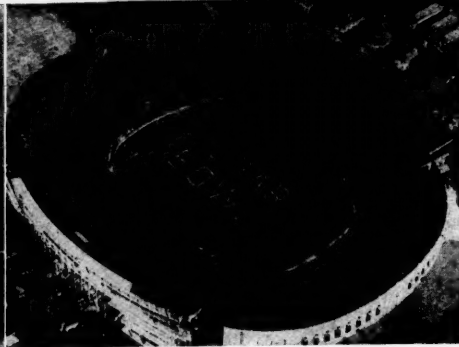
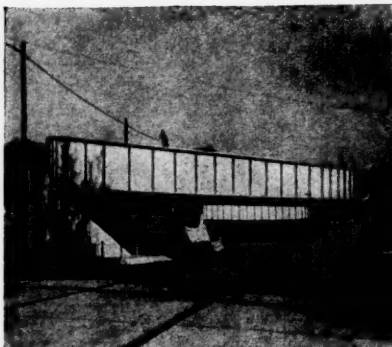
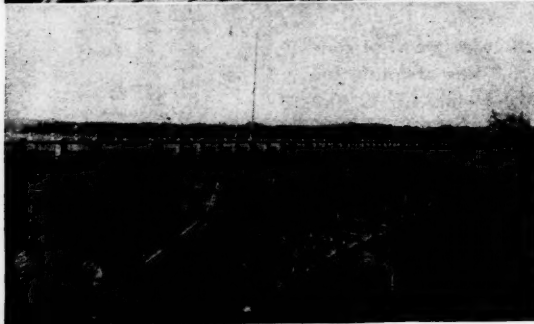
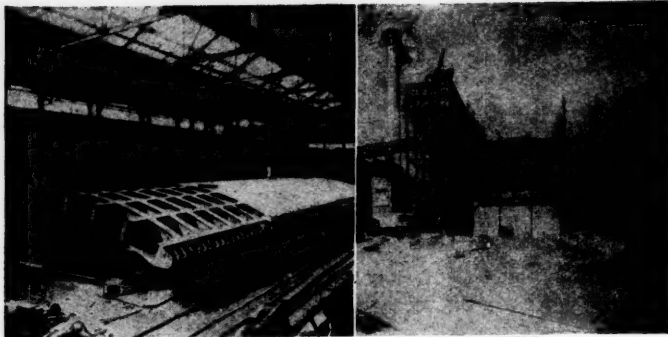
RAILWAY

FOR SEVEN PLANT LOCATIONS

Postwar Designing is the job of Today

and because steel supplies the most answers to construction demands, engineers, architects and building officials will rely on structural steel to meet the requirements for strength, elasticity, versatility, durability and ultimate economy.

Steel is better than ever today because of wartime research, and Virginia Bridge engineering, fabricat-



ing and erecting resources are greater because of invaluable experience gained in supplying structural steel for the many and varied types of war

construction and special equipment.

For bridges, industrial plants, commercial buildings, hangars, lock gates, stadiums—or whatever the type of construction, our structural steel know-how is at your service in the preparation of steel designs and estimates.

**STEEL STRUCTURES
ALL TYPES**



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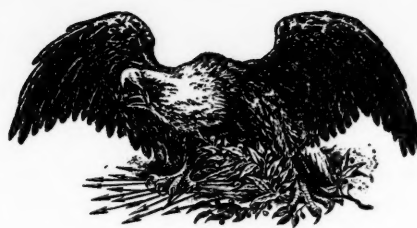
Memphis

New York

Atlanta

Dallas

UNITED STATES STEEL



"What Enriches the South Enriches the Nation"

"INDIVIDUAL FREEDOM"

by **Thurman Sensing**

*Director of Research
Southern States Industrial Council
(Guest Editor)*

The most valuable possession owned by a citizen of the United States is "Individual Freedom." Moreover, "Individual Freedom" is owned not by just a favored few, not by just the wealthy or by the educated, not by just the clergy or the lawyers or the doctors or the politicians or the diplomats—it is owned by every citizen of the land.

"Individual Freedom" means, among other things, the right of a citizen to carve out his own career, the right to work when and where he pleases, the right to vote for whom he pleases, the right to live where he pleases, the right to study, the right to save, the right to trade, the right to accumulate property.

The benefits of "Individual Freedom" are the greatest that man can have. "Individual Freedom" makes it possible for a man with energy and ambition to rise to any height to which he aspires. Time and time again in this country, "Individual Freedom" has made railroad presidents out of section hands, has made bank presidents out of office boys, has made owners and operators of all sorts of businesses from men who started at the bottom,—has moved men from log cabins to the White House.

"Individual Freedom" depends on the type of government we have. So long as the people control the government, then we have "Individual Freedom." When it comes about that the government controls the people, then there is no "Individual Freedom."

This "Individual Freedom" was the fundamental basis of the government established under our Constitution. For the first time in the history of the world, our forefathers were able to establish the kind of government men had been struggling for from the beginning of time—a government that would serve the people. Heretofore peoples had existed for the benefit of their governments; our fathers established a government that would exist for the benefit of the people—a government built on "Individual Freedom."

There is serious danger that we may lose "Indi-

vidual Freedom" in this country, and that soon,—as it has been lost in other countries of the world. There is serious danger that in our search for economic security and in our demand that the government "guarantee" us a living that we shall relinquish our freedom, that we shall turn over to the government the right to order our lives, that we shall make the same fatal mistake that has often been made before in history—that we shall "sell our birthright for a mess of pottage." "Individual Freedom" is a very personal thing in the life of a people—with it, they are masters; without it, they are slaves.

Unquestionably those who have most to lose in the surrender of "Individual Freedom" in this country are the great middle classes of the country—the working man, the average man. When "Individual Freedom" is surrendered, then the average man will no longer have the opportunity or the incentive to rise higher in the world, to make better provisions for his family, to accumulate property, to own his own business.

Every one of us should realize more keenly now than ever before that "Eternal Vigilance is the Price of Liberty." We should realize that we can't play the ostrich and stick our "heads in the sand" and say "everything will come out all right." We should "keep our eyes open" and not be deluded by false promises of those whose real purpose is to gain control of the *freedom* which we all have as individuals.

This is not a matter of politics or political parties—it is a matter of principles of government. We shall not be worthy of our ancestors who fought with Washington at Valley Forge or those who fought with Lee and Grant at Gettysburg or those who fought with Pershing at Belleau Wood—and we shall not be worthy of our sons and brothers who are fighting now all over the face of the world—if we let anyone or any organization take away from us our most precious possession—the "Individual Freedom" of a free man in a free country.

MORE GOODS FOR MORE PEOPLE

In order that business may thrive, a favorable Government attitude toward it must prevail. Our intricate and delicately-balanced economy can be thrown out of gear and stagnate when industry is subject to harassing and unnecessary restrictions and when profits, the mainspring of economic activity, are under constant attack. The industries that have been subjected to the greatest amount of Governmental regulations in regard to prices, wages, output, and the like have the worst employment record. This is so because undue Governmental interference discourages managerial initiative and discourages the inflow of fresh capital to industry.

During the past decade more than ever before, organized labor has emerged as a powerful factor in our economy. Since members of this group have the greatest stake in job-making, it should be a matter of particular concern to them that business should function smoothly and effectively.

The gain in real wages for the past three decades or more has corresponded closely to the increase in productivity. In the long run this must be so for the very continuation of the capitalistic system is dependent upon a broad distribution of income so that output can be absorbed.

Policies of organized labor should square with the forces that make for greater productivity. As a matter of self interest, labor organizations should shun rules which impose limitations upon output, permit "feather bedding" and slowdowns, and perpetuate nonproductive employment, for all of these measures interfere with the flow of goods to the consumer, invite unemployment, and lower living standards for all. Furthermore, when wage rates are forced upward beyond what the traffic can bear, a decline in consumption follows, with the consequence that businesses and industries have suffered and jobs in them have been destroyed. This has happened over the years in the case of railroads, coal mines, and the building industry.

Since wages constitute the major element of cost in almost every business they must be reasonably flexible. If they are not flexible the high compensation of the few will imperil the jobs of the many and management will not have control over costs and, with this control lost, will not be in a position to underwrite a high level of employment.

Management is the initiator and pacesetter under a system of private enterprise. It has the principal responsibility for job-making. Its chief economic objective should be more goods for more people at less cost.

AS AN EXAMPLE-- TAKE COAL

One of the country's major industries that faces a difficult post-war problem is the one which operates the nation's coal mines. Its financial condition was so serious in 1935 that it was singled out from all other segments of our economic structure by governmental planners for special consideration and a commission within the Department of the Interior was authorized by law not only to fix regional prices of coal at the mines but to impose on every operator in his predetermined district wage scales that were to be arrived at through collective bargaining practices between mine operating companies and their employees. This law was declared unconstitutional and was almost immediately supplanted by its successor in 1937. This new law empowered the Commissioner to fix regional prices; gave him no control over wages, but stipulated that he was required to consider ALL operating costs in determining such prices. This law has now expired by limitation.

We single out the coal industry for comment not because it differs from any other industry in facing the necessary readjustment from war to peace conditions but because it emphasizes them. Its problems are not unique. They are the same that every man in business faces. Briefly stated, they are (1) finding a market for their product sufficiently large to absorb their full share of employable labor and (2) selling their product in competition with others at prices that will permit them to operate as going concerns and pay wages and earn profits commensurate with their value to the total national economy.

Under the stimulus of war the coal industry has been motivated by but one thought—to produce and produce and produce—. Its market has no bottom, top or sides. But with war's end its thought must shift from production to consumption. Its thought then will be—to sell and sell and sell—. It must find new markets for coal in the constructive markets of peace to replace the tonnage that has been poured lavishly into the voracious maw of destruction caused by war.

The coal industry is used as a business example because it has been singled out in the past as one that should receive special governmental attention. In principle, however, it is no different from your business or ours. If it is advisable for government to give preferential treatment to coal then why should it not give it to any other business activity that performs the minutest role in our economic structure? If coal presents a problem that must be solved by government then any business that cannot meet current competition presents a like problem. Such a course logically leads through government regulation to control of every industry and is a very short step removed from state ownership. State ownership is now called Communism. A new sugar-coated name for it will not change the content of the pill.

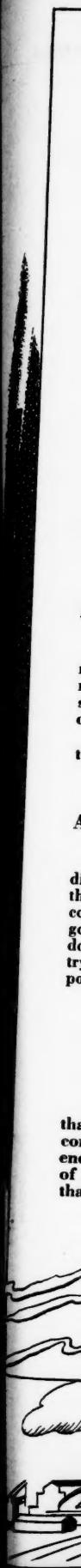
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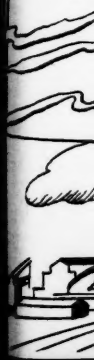
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LEADERS READ THE "RECORD"

ALABAMA POWER CO. BIRMINGHAM, ALABAMA

It has been my observation that the *Manufacturers Record*, in its sixty-three years of existence, has contributed greatly to re-establishing among southerners confidence in the potentialities of the South and the urge to develop them. It has been a staunch believer in, and exponent of, progress through private initiative and enterprise.

THOMAS W. MARTIN,
President.

ALABAMA BY-PRODUCTS CORPORATION BIRMINGHAM, ALA.

The *Record* has never wavered in its loyalty to the South. Much of the credit for the great industrial growth of this section is due to the untiring and intelligent efforts of the *Record* in proclaiming to the world the industrial possibilities that are to be found in our Southland.

J. W. PORTER.

P. M. BARGER LUMBER CO. STATESVILLE, N. C.

The *Manufacturers Record* is a most valuable publication, good material, attractively designed. A splendid magazine for advertising or publicity purposes.

We could say many more nice things for you and your magazine.

P. M. BARGER,
President.

ALABAMA PIPE COMPANY ANNISTON, ALA.

We, as a Southern manufacturer distributing our products throughout the Western Hemisphere, are given considerable satisfaction through the good job *Manufacturers Record* is doing in acquainting our entire country with Southern enterprise and opportunity.

E. S. BOBBITT,
General Sales Manager.

CENTRAL OF GEORGIA RAILWAY COMPANY SAVANNAH, GA.

I am impressed with the fact that the *Manufacturers Record* combines the wisdom and experience of age with the zeal and vigor of youth. Its field is unique in that it is not only an accurate

chronicler of events, but an interpreter of their significance and effective exponent of the interests of this great territory.

M. J. WISE,
Vice President.

THE AMERICAN SUGAR REFINING COMPANY NEW YORK

Office of
the President

Sixty-three years dedicated to the industrial development of the South is a record in which you may take great pride.

I am sure you have accomplished much in stimulating interest in the possibilities open to industry in the southeastern and southern states.

J. F. MOORE.

E. F. CRAVEN COMPANY GREENSBORO, N. C.

It has been our pleasure to have read the "*Manufacturers Record*" over at least two-thirds of the years of its life, so we feel that we can speak from observation and experience of the continuous service of your publication to build up our great Southland of the United States.

E. F. CRAVEN,
President.

CHADWICK-HOSKINS CO. CHARLOTTE, N. C.

You have every reason for reviewing your record with real pride and satisfaction. Your policies have been consistently sound and constructive. Indeed no publication has contributed more to Southern progress in the past half century.

B. B. GOSSETT,
President.

DANIEL CONSTRUCTION COMPANY, INC. GREENVILLE, S. C.

You have done a magnificent job with your concentration on the industrial development of the South.

CHARLES E. DANIEL,
President.

CONVENIENCE, INC. GREENVILLE, S. C.

I would like to express my appreciation for the wonderful work that the *Manufacturers Record* has done over a long period of years in promoting advertising and advancing the industrial possibilities and growth of the South.

It would be impossible to estimate

the value of the *Manufacturers Record* to the southern people.

W. W. PATE,
Vice President.

FISKE-CARTER CONSTRUCTION CO. GREENVILLE, S. C.

Having been a constant subscriber for more than twenty years for your most excellent publication, it is my opinion that the *Manufacturers Record* has accomplished more in the "Upbuilding of the South" than has been realized from any other source whatsoever.

W. W. CARTER,
Treasurer.

DEBARDELEBEN COAL CORPORATION BIRMINGHAM, ALA.

I feel no greater service has been performed for our territory than your constant featuring of the opportunities and advantages offered by the South, which are unsurpassed elsewhere in the civilized world and explain the South's fabulous progress in the lifetime of your publication.

A. W. VOGTLE,
Vice President.

THE INGALLS IRON WORKS COMPANY, INC. BIRMINGHAM, ALA.

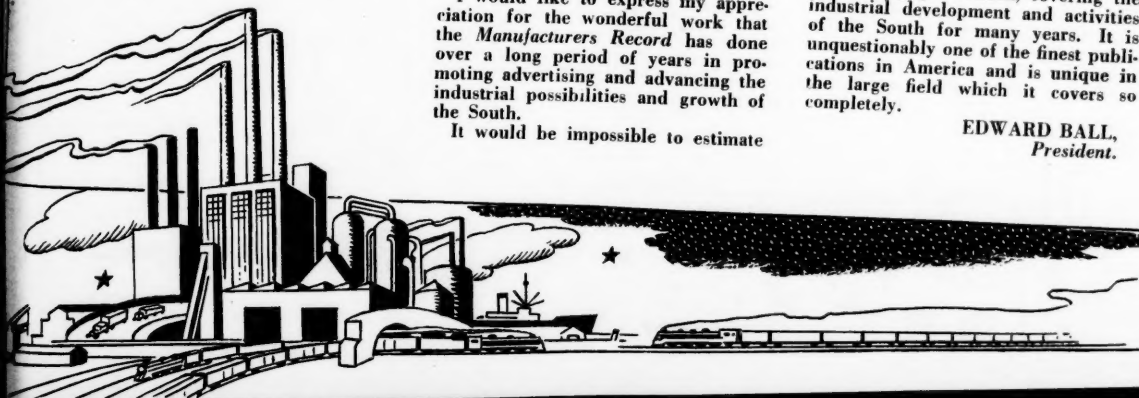
As both an advertiser and a regular reader, I am familiar to some extent with your editorial policies and with the way your articles have promoted southern business and industries. Now that the South is coming into its own as an industrial section to be reckoned with, I know it affords you a great deal of pleasure to know that *Manufacturers Record* has been instrumental in this development.

ROBERT I. INGALLS, JR.,
President.

FLORIDA NATIONAL BANK JACKSONVILLE, FLA.

I have been a reader of your splendid publication, "*The Manufacturers Record*," for a number of years. The *Manufacturers Record* has been an outstanding publication, covering the industrial development and activities of the South for many years. It is unquestionably one of the finest publications in America and is unique in the large field which it covers so completely.

EDWARD BALL,
President.



**MONSANTO CHEMICAL CO.
ST. LOUIS, MISSOURI**

I share with the *Manufacturers Record* the belief that the South has one of the most promising industrial futures of any section of the country, and I hope you will continue your fine efforts to guide and speed this development.

**CHARLES BELKNAP,
President.**

**T. C. HEYWARD
CHARLOTTE, N. C.**

At no time during the past 36 years of my business experience has there been any question of the fact that the *Record* has been far in the forefront in effectively championing Southern industry. In these recent disturbing years, can I add your editorials have been reassuring—I might say, an inspiration—in their unflinching and uncompromising adherence to the fundamental principles of sound business and sane government.

The *Record* is held in the highest regard by business men in the South.

T. C. HEYWARD.

**THE NASHVILLE, CHATTA-
NOOGA & ST. LOUIS
RAILWAY
NASHVILLE, TENN.**

I have been a regular reader of the *Manufacturers Record* for many years. Your effort to help build a sound economy in the South seems to me entirely sound. It is based, as I understand it, on the indispensability of a Government of law, and, upon that sound foundation, is to be superimposed the Free Enterprise System—which is democracy at its best—giving that reward to each member of society in proportion as each may contribute.

**FITZGERALD HALL,
President.**

**ILLINOIS CENTRAL SYSTEM
CHICAGO, ILLINOIS**

Through the collection and presentation of reliable information on Southern progress and prospects, the *Manufacturers Record* has been an unflinching inspiration and stimulant to continued achievement.

**J. L. BEVEN,
President.**

**REYNOLDS METALS CO.
RICHMOND, VIRGINIA**

Your great publication was quite a stimulant to me very early in my

life. I have continued to read it and find that it loses none of its stimulating effect.

It must please you to know that your long efforts for the South are being rewarded in a big way. I think, at present, it is just a prophecy of the tremendous future facing the South.

**R. E. REYNOLDS,
President.**

**MISSISSIPPI POWER &
LIGHT COMPANY
JACKSON, MISSISSIPPI**

I well remember when the *Manufacturers Record* was the only voice

In 1882 Richard H. Edmonds dedicated his life to his belief in the idea that the South could, and would become a great industrial section. He founded the *MANUFACTURERS RECORD* on that idea. He planned, wrote and talked of the South's magnificent prospects for development to Southerners, Northerners and Westerners alike. He had faith in an idea and he stuck to it until his death in 1930.

We, Mr. Edmonds' successors, consider it a privilege and a pleasure to carry on his great work. That we do not lack for inspiration and encouragement in the ever brightening task that we have inherited from him is proved by the extracts from some of our readers' letters that we proudly reproduce here.

raised in behalf of industrial development in the South.

It should be most gratifying to you to see your most optimistic prophecies more than realized.

REX I. BROWN.

**ST. LOUIS SOUTHWESTERN
RAILWAY LINES
ST. LOUIS, MO.**

It has been our observation that the articulate effort of the *Manufacturers Record* has played a dominant role in bringing about the degree of development which has taken place in the South during the past three decades.

**DANIEL UPTEGROVE,
Chief Executive Officer.**

**MISSOURI PACIFIC LINES
SAINT LOUIS, MO.**

During the nearly two score of years in which I have been interested in the growth of the South and Southwest the *Manufacturers Record* has

consistently played a leading part in fostering the industrial and agricultural development of that section.

L. W. BALDWIN.

**SEABOARD AIR LINE
RAILWAY
NORFOLK, VA.**

The *Manufacturers Record* has been for many years one of the most constructive agencies in the economic progress of the South.

It is not too much to say that every citizen of the South is indebted to the *Manufacturers Record* for its work in behalf of this area. Your efforts have also been of great benefit to the entire nation.

**WARREN T. WHITE,
Special Assistant to Receivers.**

**PEERLESS WOOLEN MILLS
ROSSVILLE, GA.**

While specializing in problems of greatest interest to the South, the *Manufacturers Record* carries advice and information of benefit to business men all over the United States.

My one regret is that copies of your splendid publication are not available to all.

**H. M. McCULLOCH,
Secretary.**

**J. E. SIRRINE & COMPANY
Engineers
GREENVILLE, S. C.**

No single factor has been more responsible for the growth and development of the South than your publication, and no one has been more fearless in advocating that which was good or condemning that which was wrong.

J. E. SIRRINE.

**REYNOLDS BROS., LUMBER
COMPANY
ALBANY, GA.**

Please permit the writer to express to you his appreciation for the services that your Magazine has furnished the industrial South during the past years.

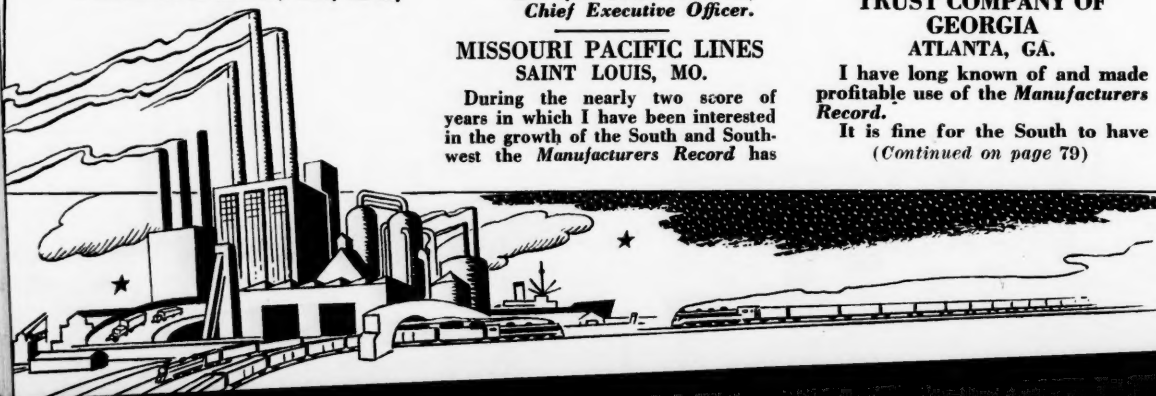
The writer recalls the high esteem in which you were held by his father, the late Gordon E. Reynolds, and all of us admire the sound course which you have followed and your fearless support of proper legislation and other matters involving the development of the South.

**REYNOLDS BROS. LUMBER CO.
J. E. REYNOLDS,
General Manager.**

**TRUST COMPANY OF
GEORGIA
ATLANTA, GA.**

I have long known of and made profitable use of the *Manufacturers Record*.

It is fine for the South to have
(Continued on page 79)



Business Firm Turnover Rate

THE rapidity with which business concerns disappear, change hands and reappear has always been of considerable interest to the business world. During the war, this turn-over among business concerns has attracted particular notice because of the rapid decline in the total number of firms.

By the end of 1943 there were over 530,000 fewer concerns than at the beginning of 1942. Actually, almost 1,100,000 concerns discontinued business during this period, but these were partially offset by 570,000 new openings. Quite apart from these changes, an additional 540,000 concerns were reorganized or transferred to new owners.

These are impressive figures. The decline in number of firms has not, however, been accompanied by a similar decline in the profitability or volume of business for most lines. The high rate of business closures and the relative scarcity of new enterprises have been largely due to the existence of attractive alternative employment opportunities in war industries and to the operation of Selective Service.

Despite the decline in number of operating firms during the war period, the number of new, discontinued, and transferred businesses has not differed greatly, in general order of magnitude, from that regarded as normal in peacetime. During 1940-41, for example, new businesses were appearing and old ones disappearing at the rate of nearly a half-million per year. The net decline in numbers during the war period was due to the fact that business discontinuances were somewhat more numerous than usual, and new firms considerably fewer than normal. Recently, however, business births and business deaths have approximately equalized, both at an extremely low rate.

The upward trend in number of firms reached a peak in the third quarter of 1941. The decline in the total number of firms during 1942 and the first part of 1943 was the result of remarkably similar movements of the major industrial groups. Except for mining and manufacturing, not only was the

**1,100,000 firms
closed from 1942
to late 1943---
570,000 new
ones started**

general direction the same, but the change was of approximately the same magnitude. This was undoubtedly due to the fact that the several groups were subject to the same influences, namely, scarcity of materials and merchandise, shortage of labor, and the existence of attractive employment opportunities for entrepreneurs in the rapidly expanding war industries.

A ranking of the industrial groups with respect to the relative drop in number of firms indicates that construction suffered the greatest decline, followed by wholesale and retail trade, services, transportation - communication - public utilities, and finance - insurance - real-estate. Because of the stimulus of the war, the number of firms in manufacturing and mining in-

creased throughout the entire period.

Although the number of firms engaged in construction remained at a high level until after the first quarter of 1942, the ultimate decrease was greater than for any other group. The reduction in the number of firms in this field was due largely to the drastic curtailment of residential and other small-scale construction.

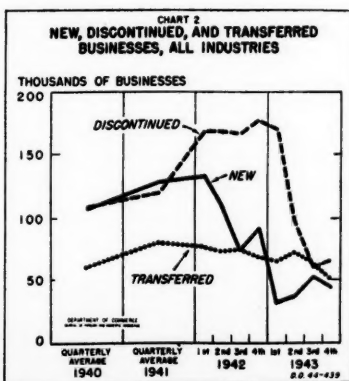
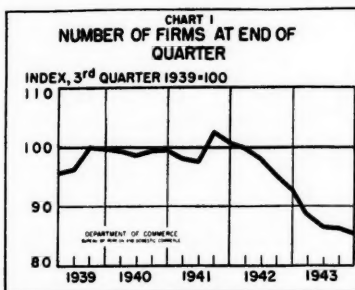
One of the most significant changes in the business population has been the leveling-off of the downward trend during the latter part of 1943. Evidence of this change in direction is particularly strong in the retail and service trades. In some sections of the country the trend in retail trade has already been reversed, and the number of firms in this field is beginning to increase.

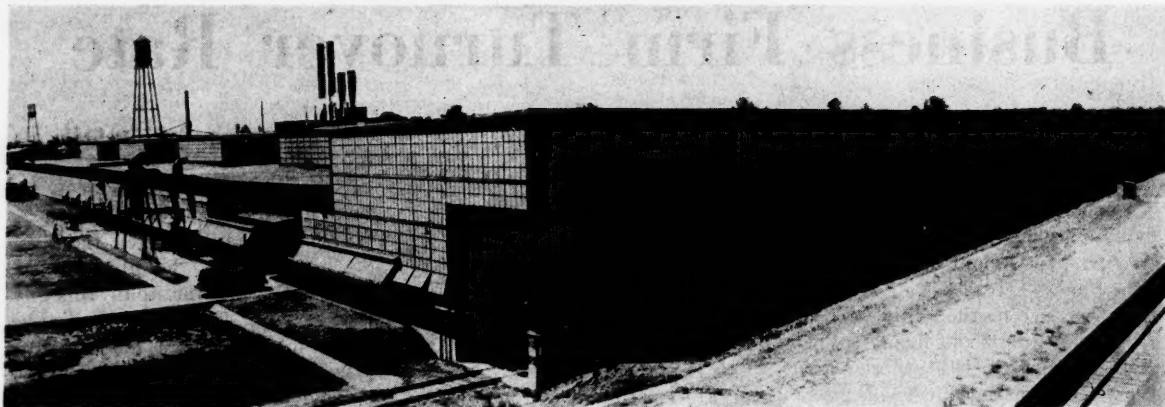
The wartime drop in number of operating firms has been due as much to the decline in rate of entry of new firms as to the increase in rate of discontinuances. In 1942-43, 570,000 new businesses were established, whereas in the pre-war years 1940-41 the number of new entrants totaled nearly a million (948,100).

Indeed, the rate of entry of new businesses declined to what is perhaps an all-time low in the first quarter of 1943. Since then, the quarterly number of new enterprises has tended to increase, although somewhat slowly. However, the number of discontinuances also has recently reached an unusually low level, due in part to the fact that there have been relatively few new entrants in the past 2 years. An approximate balance between business births and deaths has been established in recent quarters, and the business population has become relatively stable.

That private initiative has maintained its vitality is indicated by the number of new business ventures launched in 1943. In spite of the war and the obvious difficulties associated with it, 163,400 new concerns entered the field. This is nearly 40 percent of the number of new enterprises started in 1940.

(Continued on page 60)





"Multiple Industrial Tenancy" Peacetime Use That May Conserve Wartime Haste

AN important problem confronts us when we approach conversion and re-conversion for peace. It is to get government-owned plants into the hands of private industry. Government disposal of many plants will be by sale to enterprising industrialists. Some few may be leased, government retaining title, and kept in reserve against future demands for war production. A few may be dismantled because of their vast size. There are many that can be sold to private owners and operated by them at a profit to themselves, their tenants and their communities.

Multiple Industrial Tenancy stands out as a possible solution of the economical post-war utilization of many of the fifteen and a half billion dollars worth of industrial plants with a total floor area in excess of 427 million square feet — nearly 10,000 acres—now owned by the government. Close to five billion dollars worth of these plants, with floor space approximating 100 million square feet, are located in southern states.

Pessimists foresee this great array of production facilities as ghost factories, rotting away, their myriads of windows targets for small boys armed with sling shots and air rifles. But American industrialists are

*many occupants
under one roof
seen by some
as necessary
to avoid "ghost
plants" after war*

by

McL. Smith

not pessimists, especially those of the South. Through a clear understanding of Multiple Industrial Tenancy, its relative simplicity and a knowledge of its practical application, there need be no serious waste of plants built for war production. Rather, this plan offers a way of salvaging a good portion of the cost of these plants and at the same time gives industry a tremendous impetus in its move to channel \$125 billion of goods into markets that

have been much nearer to empty than full for more than three years.

The industrial and economic progress of the South can be furthered through orderly and rapid conversion of many of her war plants to production of goods for which there will be a demand. These will run the gamut from hair pins to locomotives; from work clothes to evening dress; from lipsticks to house paints. It is readily understood some plants will, by their very nature, remain in reserve against war in the future; a few will be too great in area for private industry to use with any degree of efficiency. These last may well be kept by government as warehouses for the storage of machinery and munitions reserves, but there are many others that are readily adaptable to the requirements of private enterprise.

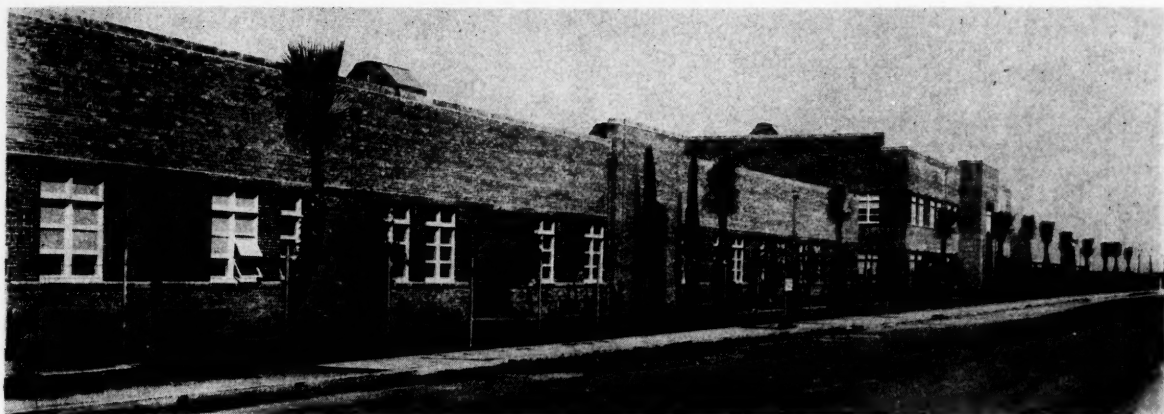
The plants which will have to be retained by government because of suitability only for war purposes are relatively few. A large proportion of the war plants are readily convertible to normal peace-time production; however, numbers of these are too large for any single manufacturer or processor to utilize by himself. Right here is where Multiple Industrial Tenancy enters the picture; more than one industrial enterprise can be housed in a

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plant. As many as 75 or 100 manufacturers can be accommodated in a single structure, none interfering with his neighbor, all enjoying the advantages that accrue to industrial concentration. Transportation, power, loading and unloading facilities will all be centered at one point; that point right at doorways of the occupants.

Admitted that no one operator can purchase an entire plant, the question arises: How can a number of manufacturers arrange to obtain a plant? Two courses are open—either they can band together and form their own holding company to acquire the plant from government, each contributing a share proportionate to the space he will occupy; or, local real estate boards, bankers, chambers of commerce and other business and civic-minded organizations can be prevailed upon to organize a holding and operating company. This last method would be the most desirable. Let us try to look at it in some detail.

There is a moderate size war production plant in your city, yet this plant is too large for any one manufacturer. In fact, it can accommodate twenty-five, or more. A local corporation is formed to buy the plant from government and also act as an operating company of the newly acquired property. It will not only lease space to industrial tenants, it also will handle all services the tenants will require—heat, light, power, etc., just as the owners of city office buildings handle all services for their tenants.

It will not be necessary that the holding-operating company have every square foot of space spoken

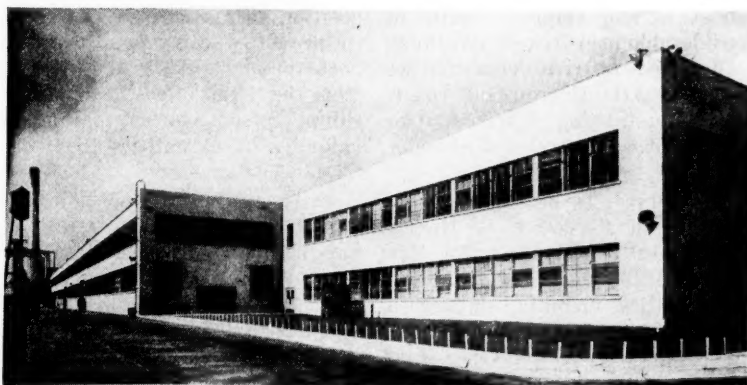
for, or leased, at the outset. Rather, it would be better if the plant is partially occupied at first, leaving space for future expansion needs of tenants, or as means of attracting new industries to the operation with consequent benefit to the community.

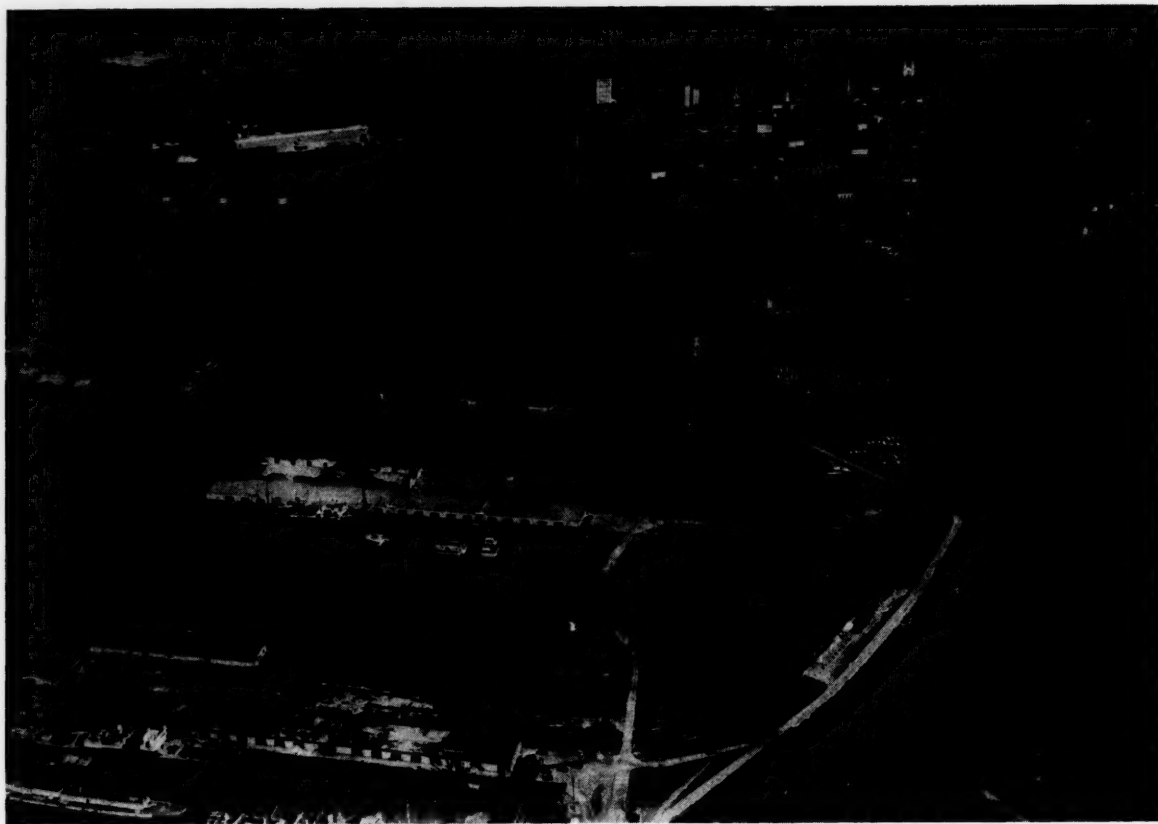
The problem of finding suitable space and buildings for manufacturing enterprises of all kinds and sizes is always with us even in the depths of the worst depression. The problem of finding a space of exactly the right size to fit the needs of a particular enterprise is an ever recurring one. Because no business remains forever static, but must continually add to or dispose of some of its space, no solution to such a problem is ever adequate for more than a short time; and then the management goes on a hunt for additional space if the business has expanded, or for a tenant for its excess space if its needs have been reduced.

These problems have led to the establishing in many industrial communities of Multiple Industrial

Tenancy plant properties, wherein a manufacturer can rent exactly the amount of space of exactly the type he needs. At the same time he can arrange with the management of the property for the delivery of a variety of services such as electric power, process steam, hot water, car-loading and materials handling. Such properties have been established by private enterprises as normal profit-making business ventures, ranging in size from small multi-story loft buildings to such developments as the Bush Terminal in New York with a million or more square feet of floor space. They have been organized by municipalities as a means of centralizing their manufacturing and transportation facilities and attracting new industries to their communities. A notable municipal enterprise is the Port of New York Authority Industrial Center Building with 2,600,000 square feet of floor space and complete rail, express and freight service directly into the building. In other cases they have been a means of averting the

(Continued on page 62)





Savannah Studies Facilities as First Step Toward Bid for Port Prominence

RECENT appropriation of \$10,000 by the City Council of Savannah as the Forest City's share of the cost of a thorough survey of that port denoted the first step in a determined move to make Savannah another of the really great ocean terminals of the South. Already an industrial and shipping center of considerable proportions, Savannah is destined to rival sister Cities along the Atlantic and Gulf coasts as an outstanding competitor for traffic and commerce of world-wide extent.

The survey, to be conducted by the firm of Frederick R. Harris, Inc., consulting engineers of New York, will include a study of existing facilities, including ownership, condition, and requirements; traffic through the port and types of imports and exports best suited; de-

termination of foreign markets; rail transportation facilities, and suggested legislation.

Savannah, situated on the South bank of the Savannah River, and 24 miles from the Atlantic Ocean with a channel 30 feet deep and a water frontage of 36 miles, is in an enviable position to maintain and increase its presently heavy import and export tonnage. Also, the distance from the ocean offers protection to shipping from storms, making Savannah's port facilities those of a land-locked harbor.

Three coaling stations and four fuel oil bunkering stations serve the harbor, while repair and maintenance facilities, including a graving dock 475 feet in length by 73 feet in width with 24 feet of water over the keel blocks, offer service to anything from a small pleasure craft to

ocean-going vessels of the Liberty and Victory types. Pilotage, wharfage, handling and storage charges are competitive with other ports along the Atlantic and Gulf coasts.

Statistics on imports and exports have been restricted since 1940, but by 1939 annual foreign tonnage through the port of Savannah had almost reached the one-million mark, with imports about 35,000 tons greater than exports. The port will be in even better physical condition to handle greater tonnages with the coming of "V-Day."

Five railroads, two of them with home offices in the City, operate into and out of Savannah, all of them tapping rich agricultural and industrial areas. In addition, a channel six feet deep extends 199 miles up the Savannah River to Augusta, Georgia, affording economical barge

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service to shippers along the route. Ten contract motor carriers and nine common carriers, all operating under rates, rules and regulations of the Interstate Commerce Commission, further augment transportation facilities. Three commercial air lines serve the city.

Development of Port Wentworth, immediately North of the city, has played an important role in the industrial growth of Savannah and will be a valued asset in the further peace-time expansion of Georgia's chief seaport. It was through the joint efforts of the Port Wentworth organization and City officials of Savannah that large operations, such as the Union Bag and Paper Corporation, Dixie Asphalt Products Corporation, National Gypsum Company and American Steel and Wire Company—to name a few with plant investments running into a total of seven figures—were brought to the Savannah area. A shipyard has been developed at Port Wentworth, while private and public housing construction there have provided home units for 1,000 families. Many millions of dollars have been expended in this section alone, and its 3,000 acres of available factory and industrial sites should be the locale of numerous postwar industries destined for development in Savannah and vicinity.

Long the world capital of the naval stores industry, Savannah has other industries that contribute to its firm position and future as an industrial and manufacturing center of notable proportions. Annual value of manufactured products has passed the \$100 million mark and the diversification is such as to assure industrial activity throughout the year. Asphalt, wooden barrels, food processing, kraft paper, chemicals, dairy products, lumber,



Savannah Sugar Refining Company's Plant.

roofing, sugar, cargo trailers are only a few of the industries now active in Savannah, but they serve to give an idea of the wide range of manufacturing now taking place there. At present over 300 plants are turning out 750 different articles of commerce, while 275 non-local firms maintain branches or businesses in Savannah.

Forest resources of the immediate area have long been a prolific source of revenue, contributing annually over \$40 million in the form of lumber, pulpwood, piling, veneer logs, cross ties and cooperage. Commercial fisheries, including shrimp, prawn, crabs, have produced a canning industry of appreciable volume, while recently enacted legislation portends a revival of oyster production.

The Herty Foundation Laboratories, devoted to Chemurgic research, are located in Savannah and will play a large part in the industrial growth of the section. A late development is the production of fine quality papers from bamboo and cotton stalks, both available in large quantities in the territories served by the carriers entering Savannah.

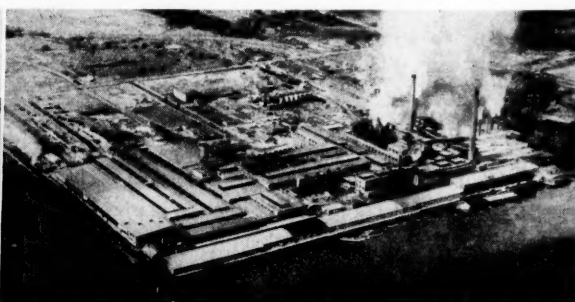
A new industrial water supply plant to supplement the present system is now in its early stages. A bond issue of \$1 million has been authorized by the citizens of Chat-

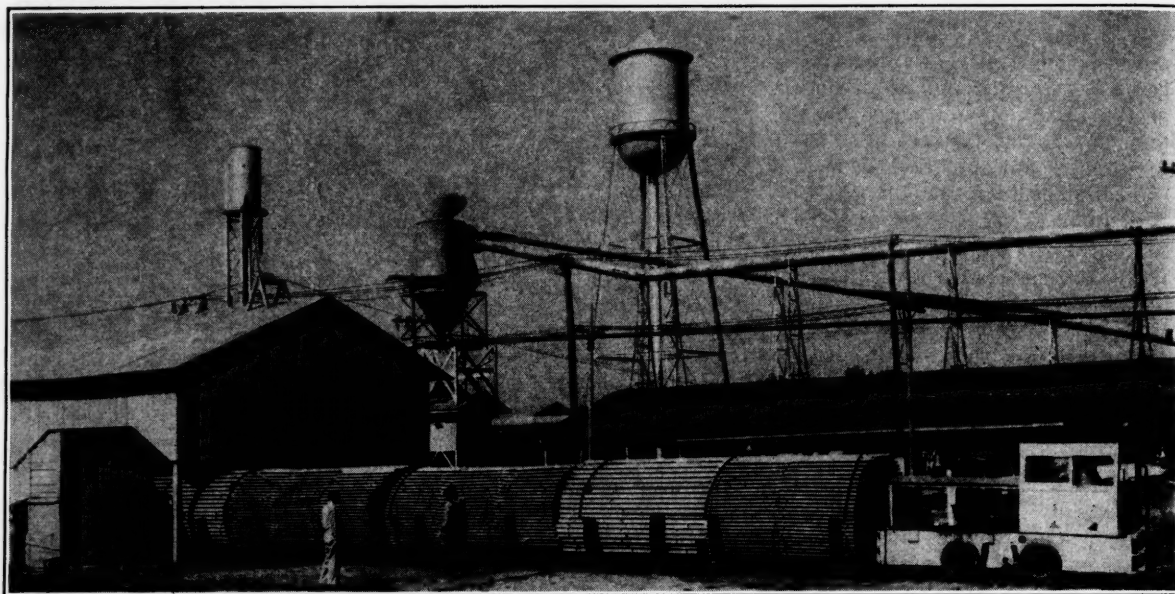
ham County, to provide funds for a survey of the present system, and for preliminary work on construction of the new. The new plant will take water from the Savannah River, process, filter it, etc. The first unit will have a daily capacity of 50 million gallons. Water from this new plant will be free from mineral salts, eliminating boiler scale and other troubles often encountered by industrial users of artesian waters.

It is impossible to enumerate here all of the advantages Savannah offers the manufacturer who would locate in the South; chief among them are ample plant sites served by rail, water and motor carriers; nearby raw materials for practically any article of commerce; a climate that permits year-round operations; an intelligent, native-born labor supply; adequate banking facilities and a citizenry that is forward-looking with plans to make of Savannah a manufacturing center and sea port of major importance in the economy of the South.

Spearheading Savannah's aggressive drive to the forefront as an industrial and shipping center are the Industrial Committee of Savannah, Inc., the Savannah Chamber of Commerce and the Savannah Port Authority, all three organizations working in unison to reach the desired goal.

Left—Graving dock, Savannah Machine & Foundry Co. Right—Union Bag & Paper Plant





South a Big Factor in Wood-Preserving

FROM 1716, when the first wood-preserving patent to be issued in the New World was granted by the province of South Carolina, the South has figured strongly in the wood-preserving picture.

Although the industry was slow-growing at first—in 1899 there were only 21 plants in the United States—by 1943 it counted 229 plants, and tallied its overall production at 3,133,667,760 board feet of treated lumber. Of this total, Southern plants produced more than forty per cent, almost as much as the combined production of the four other regions where wood preservation is carried on.

According to R. K. Helphenstine, jr., of the U. S. Forest Service, 83 of the total wood-preserving plants in the country in 1943 were located in the South, 31 on the West Coast, 29 in the Interior Western region, 47 in the Interior East, and 39 on the Atlantic Coast. All but 1,191,770 board feet of the 1943 volume was treated by vacuum pressure.

For a century after Bethell of England patented his process for injecting chemicals into wood under pressure in a cylinder (that was in 1838), the wood-preserving industry's main function was to prolong the life of wood by making it resistant to decay and termites. It is true that U. S. Navy Department

*its 83 plants
produce 40%
of the output*

specifications in 1895 called for fireproofed wood in the construction of decks and certain other parts of all new warships, and the 1899 revision of the New York City building code provided for use of chemically treated wood to combat fire hazards.

However, the flameproofing industry did not become commercially important until government specifications were issued for fire retardants. Then the industry which had produced only a few million feet of flameproofed lumber before 1942 showed a volume of nearly 25 million board feet that year, and in 1943 almost trebled the volume.

A laboratory test developed by the Underwriters' Laboratories Inc., Chicago, rates the combustibility of the treated wood as compared with untreated red oak (which rates 100 in combustibility). Wood treated to a three pound retention with high grade fire retardant is

two-thirds less combustible than untreated red oak. With higher retention the fire resistance is even greater, approaching the asbestos rating (0 on the combustibility scale).

Aside from the salt preservative and flameproofing treatments—the former established by both prewar and war service and the latter almost entirely by installations during the past three years—industry technologists have been experimenting with synthetic resins (plastics) which are used in a process designed to change soft wood into wood of any degree of hardness.

This type of treatment involves impregnation of the wood with chemicals under pressure (just as in preservative and flameproofing processes). These chemicals are in colorless solution and react with components of wood to form hard, water-insoluble, unmelttable resins within the piece of lumber being treated. Wood so treated will resist swelling and shrinking, and will be hard enough to take the place of metal in some machinery parts.

Such developments as the rise in importance of the plywood industry and of fabrication methods have also given new facets to the wood-preserving industry. Plywood, it was found, was more inflammable

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than solid untreated wood, but technologists perfected waterproof and boilproof glues so that the plywood can stand vacuum-pressure treatment without delamination of the plies. Now seven and nine-ply material is being treated with fire retardants or salt-type preservatives.

In order to facilitate the treating of parts of prefabricated units, the wood-preserving industry is moving to establish treating plants in close proximity to fabrication plants. Thus lumber can be fabricated and treated at the mill to fit specifications of unit manufacturers.

Even now plans are being carried out for new wood-preserving plants in the South, where fast-growing forests and other natural advantages of the area can be utilized most fully. Wood industries officials point out that since wood can be made decay-proof, termite-proof, and fireproof it is more than ever a strong contender in the construction field . . . and facilities for keeping supply apace with demand must be established.

Before the war, treated wood was used in such installations as railroad structures, industrial plants, public buildings, dock and wharf structures, ships and residential construction. The improved, non-leaching, odorless, easily painted, salt-treated lumber had "arrived" by that time. (The results of a survey of Wolmanized lumber installations in 1940-41 show that the material lasts at an average of three to five times longer than untreated wood installed under identical conditions.)

Then came the war uses which pushed treated wood volume (especially in flameproofing) to astonishing heights. These uses are too many to list, but for the Southern area they include hangars at lighter-than-air bases in five states, synthetic rubber plants and railroad installations all over the South.

Based on its wartime use for Army, Navy, and government building, flameproofing is now taking wood into metal-plating rooms, storage buildings, sinter buildings, foundries, garages, soaperies, refinery and pipeline buildings, warehouses, storage and file rooms, cargo battens, hatch covers, grilles, duct lining and framing.

INGALLS LAUNCHES 58th LINER

Fifty-eight 18,000-ton all-welded ships in 53 months is the outstanding record of the Ingalls Shipbuilding Corporation yard at Pascagoula, Miss., where Mrs. John Terry Badham, wife of the president of the Badham Insulation Company, of Birmingham, recently sent hull 58, the transport SS Sea Dolphin, down the ways into the Singing River.

Ingalls officials and shipbuilders naturally are proud of this record which is even more impressive when the achievements of rugged Ingalls ships on seafarings all over the world are considered.

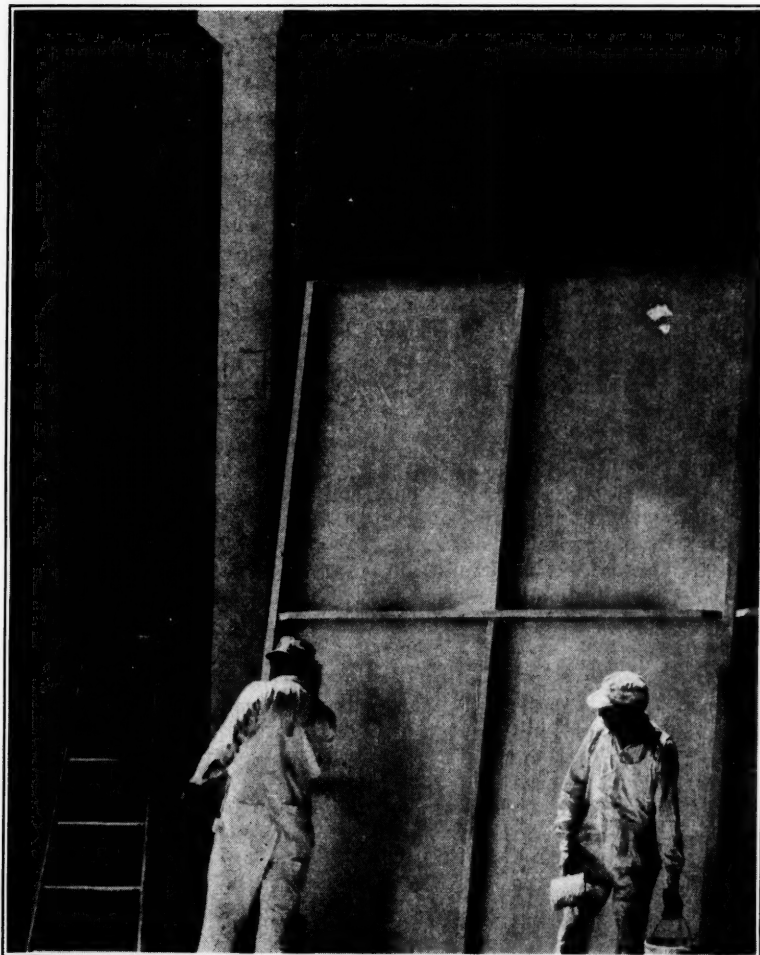
Reports on the big Ingalls fleet are far from complete for military security reasons, but enough have come in to show that vessels from the sunny Gulf Coast are doing their share in helping to win the war.

The USS Arthur Middleton, ac-

cording to information released by Secretary of the Navy Forrestal, lived to fight again after 80 days aground on a reef in the Aleutians, and a sister ship, the combat transport USS Samuel Chase, went through five Mediterranean and European invasions. The Chase survived scores of attacks from planes, submarines and shore batteries; off North Africa a torpedo slashed by only three feet from her bow.

The HMS Battler, HMS Pursuer and HMS Chaser, all aircraft carriers built at Pascagoula and turned over to Great Britain, have proved themselves real fighters. Planes from the Battler are credited with smashing a sub in the "blind spot of the Atlantic" during the worst days of U-boat attacks depredations. The Chaser, in a running battle with a Nazi sub wolfpack, helped sink at

(Continued on page 56)



Air Conditioning and its Future

UNLIKE a passenger car or truck that can be manufactured, assembled and tested in Detroit with the assurance that it will operate as well in New Orleans, the air-conditioning manufacturer cannot make the complete installation in his factory. He must manufacture or buy parts, assemble them into a mechanical cooling unit, and then rely upon one of hundreds of local dealers to apply his machine to the user's premises in such a manner that the whole will give satisfaction. It is field-installed equipment, not packaged goods. Though the manufacturer's name and reputation rides on the completed installation, he seldom has supplied more than half the final cost of the installation, and frequently has had no control over the size of the equipment used, the lay-out of the job, or the engineering considerations that spell ultimate success or failure of the whole. When manufacturers have insisted upon such control over the application of their equipment, it has necessarily run up the price, and too frequently lost the sale.

Air-conditioning is a business that requires all the precision in the manufacture of its mechanical equipment that is necessary in a good engine. In fact, it is hard to distinguish a modern radial compressor from an airplane engine, and their operation is exactly the reverse. Pressure in the engine's cylinders turns the shaft; power applied to the compressor's shaft creates pressure in the cylinders. The manufacture of air-conditioning equipment presents few opportunities to the small business, although there is vast opportunity in the sale, installation and service of the equipment for any competent small business.

Market possibilities of air-conditioning hardly have been scratched but price probably will restrict the market of residential air cooling for some time to come.

Improvements in equipment and in its application to the home, coupled with the better home construction and insulation that is expected after the war, should combine to cut the total cost of residen-

The South its most fertile field

by

A. E. Coburn

Editor

Fueloil & Oil Heat

tial air-conditioning and broaden the market for it, but from present indications the residential market is likely for some time to be subordinated to the commercial.

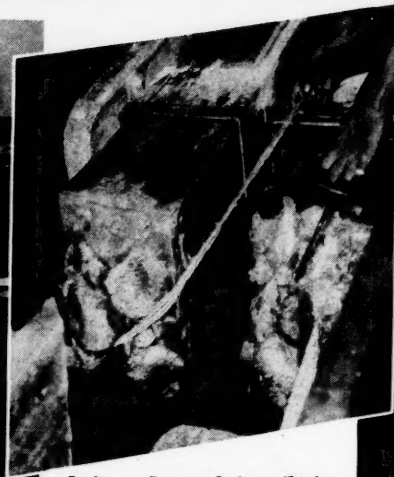
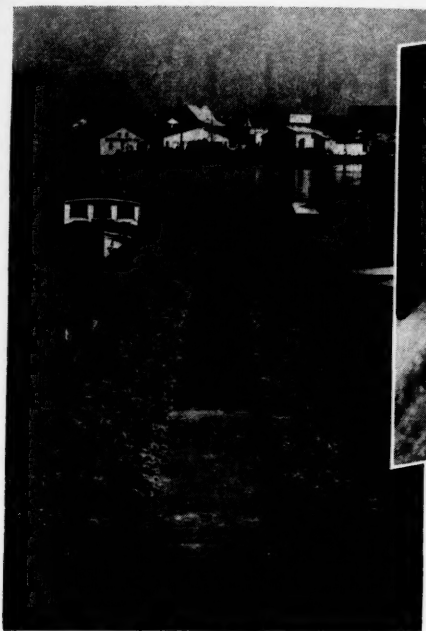
By far the largest immediate market for air-cooling equipment is in offices, stores, restaurants and similar commercial establishments where its first cost and operating cost can be justified by the advantages it provides. Although this is comfort cooling (as contrasted with the control of temperature and humidity for their effect on materials in industrial processing) it has an economic value that justifies its cost. One prominent manufacturer is setting up his distribution with the expectation that commercial cooling sales on the first postwar year will more than double the 42,650 units sold in 1941, and other estimates are on a comparable basis. Sales volume is expected to double again by the fourth year after the war, and continue thereafter at a gain of 12% to 15% a year. This rate of growth reveals a spirited and lusty adolescent who is about to become a very able citizen and a credit to the American economic community.

Just before the war one of the most prominent manufacturers of cooling equipment hired two research organizations to survey air-

conditioning users and get an unbiased view of their experience. The users were divided into two classes: selling establishments, such as department and retail stores, beauty and barber shops, and restaurants, bars and hotel dining rooms, and non-selling establishments such as banks, offices and hotels. Of all these users, 94.4% found that air-conditioning had increased employee efficiency. By reducing hot weather fatigue, it increased the work done, reduced errors, reduced absences and tardiness, and made for better relations not only among the employees themselves, but in their handling of customers. The effect on customers was equally pronounced. They were less irritable and easier to serve, and 82% of the establishments found that customers remained in the establishment longer, and in 57% of the establishments they bought more merchandise. Hot and tired people who come into a restaurant intent on having a bowl of crackers and milk for lunch frequently eat a full luncheon. The average restaurant check increases about 50% when air-conditioning is installed. Shoe stores, dress shops and other clothing establishments find it almost impossible to fit a perspiring customer, and usually can pay the operating cost of their cooling equipment out of savings in their cleaning bills alone. The result is shown in the fact that 86% of the commercial users have found air-conditioning to be a profitable investment.

As with all things that are good for people and good for their businesses, air-conditioning still has to be sold. It is still a specialty, since there is no considerable and continuing demand for it. In fact, there have been known to be unions against air-conditioning where, for instance, restaurant owners in a town realize that all will have to have it as soon as one owner starts cooling his dining room. Such combinations to stand in the way of progress usually are of short duration, since they are not in the public interest. The American public will be served!

(Continued on page 66)



Left — Seaweed (*gracilaria confervoides*) drying on docks at Beaufort, N. C.
Above — Frozen blocks of Seaweed gelatine, a step in agar extraction.
Right—Experiments on seaweed being made at the Beaufort marine Laboratory of Duke University.



Carolina Seaweed Factory Breaks Jap Agar Control

by
Bill Sharpe

THOSE things which are such a clammy bother while you are swimming, and which are such a nuisance to net fishermen are no longer mere sea "weeds." They are sea-vegetables. And at least one species, *Gracilaria confervoides*, is the basis of a new and thriving industry on the Carolina coast.

Thrifty native swimmers around here now are raking the stuff up into piles, and trawlers who used to cuss it with good old Core Sound cusswords are bringing it in along with their shrimp, to sell to processors.

Harvest and commercial use of seaweed largely had been left to the Japanese until Pearl Harbor. After that, the small California seaweed industry expanded enormously, but not nearly enough to meet current demands. The hunt for suitable seaweeds continued along the Atlantic and the Gulf, and recently a full-fledged commercial plant here began

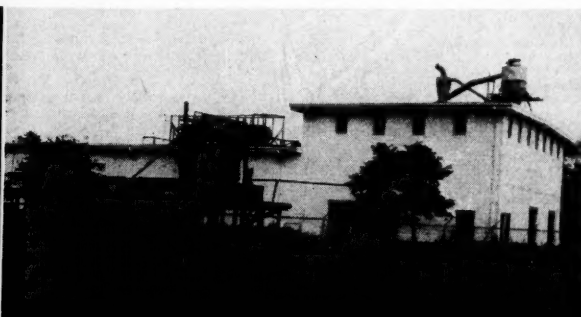
production of agar from seaweed, first on the Atlantic coast.

You may think you never use the humble aquatic plant, but it's dollars to doughnuts that you do. For instance, agar, one of the many derivatives of seaweed, is used for treatment of wounds, by dentists, in medicines and drugs, in cosmetics, in paint; as a sizing in paper and cloth, in canned fish, in pastries and baked goods, confections; as sausage casings, in hair straighteners.

It also is used to thicken soup, ice cream and chocolate milks; as an adhesive, to clarify liquids, in cheeses, in manufacture of tungsten wire, in photographic plate emulsions, and for other uses where gelatines are indicated.

Oriental in addition for years
(Continued on page 79)

Below—North Carolina agar flakes at right, Japanese variety, left.



Below — Van Sant plant at Beaufort, N. C., where American ingenuity is overcoming the former Japanese monopoly on agar made from seaweed.

Southern Construction Total Rises to \$117,946,000 during October

SOUTHERN construction awards in October totaled \$117,946,000, a gain of fifty-eight per cent over the September figure and thirty per cent above the level of contracts below the Mason and Dixon line in October of 1943.

October was the first month this year showing a rise over the valuation placed on southern construction awards during the comparable month of 1943. Private building represented a gain of thirty per cent, reflecting a slight increase in private residential awards.

Several bright spots occurred in the construction picture. One was the recommendation of a War Production Board agency that new facilities be constructed to produce the sulfuric acid required by war operations. Three such plants are proposed in the St. Louis area.

by

Samuel A. Lauver

News Editor

Another at Tyner, Tenn., where the federal government would be the sponsor.

A number of veterans' hospital projects are in the offing, supplementing those already under construction. Southern localities where such work is to be started are Tuscaloosa, Ala., Lexington, Ky., Murfreesboro, Tenn., Gulfport, Miss.

Most active industry, particularly on plans for the future, was gas transportation. Lone Star Production Co., for instance, will lay a pipeline in Texas at a cost of \$2,500,000. Cities Service Gas

Co., Bartlesville, applied for authority to build extensions and improvements that will involve expenditure of \$1,500,000.

Additional pipeline facilities are to be constructed in Oklahoma and Kansas by Consolidated Gas Utilities Corp., under an authorization from the Federal Power Commission, which also announced its order allowing Southern Natural Gas Co. to construct and operate additional facilities in Alabama, Georgia, Louisiana and Mississippi.

Several large power company projects were in the October reports. One was the award of the generator and boiler contracts for the 60,000-kilowatt addition to the Bolton, Ga., plant of Georgia Power Co. The other covered the \$30,000,000 expansion program Alabama Power Co. will undertake in the early postwar years.

Ford Motor Co. revealed that its plans for Memphis, Tenn., after the war include a \$500,000 addition to its branch there. New facilities at St. Louis, Mo., are also part of Ford's comprehensive proposal that according to reports will involve \$150,000,000 and extend to many localities in various parts of the country.

Other projects were active during the month also. A \$1,500,000 carbon black plant to be built at Guymon, Okla., by the Federal government will be operated by the Cabot interests of Boston. Projects to cost \$250,000 each will be started soon at Louisville, Ky., and Copperhill, Tenn. The former is distillery expansion; the latter, a laboratory for Tennessee Copper Co.

Louisville & Nashville Railroad was authorized by the War Production Board to build a 2.88-mile branch line to open up a 5,000-acre coal field in the vicinity of Milport, Ky. Chesapeake & Ohio Railway will build five tracks at Catlettsburg, Ky., as part of a coal loading center to be established at a cost of \$500,000 by Utilities Elkhorn Coal Co.

The Atlanta (Ga.) Constitution, according to reports plans a multistory newspaper printing plant and office building. A \$150,000 abattoir at Charlotte, N. C., was among the other projects listed during October.

The accumulation of southern contracts for the first ten months of 1944 stands at \$743,118,000, or about fifty-eight per cent of the total for the same period of last year.

Sixty-seven per cent of the October total was public building, with most of the \$79,094,000 accounted for by a big army ordnance project in Arkansas and other federal work. A negligible proportion of the amount was for school building.

Heavy engineering construction contributed approximately eleven per cent to the October figure. The \$13,844,000

(Continued on page 79)

South's Construction By Types

	October, 1944 Contracts Awarded	October, 1944 Contracts to be Awarded	Awarded First Ten Months 1944 Contracts	Contracts Awarded First Ten Months 1943
PRIVATE BUILDING				
Assembly (Churches, Theatres, Auditoriums, Fraternal)	\$616,000	\$4,684,000	\$5,176,000	\$1,312,000
Commercial (Stores, Restaurants, Filling Stations, Garages)	2,343,000	1,999,000	5,009,000	1,847,000
Residential (Apartments, Hotels, Dwellings)	4,830,000	2,090,000	43,953,000	61,139,000
Office	143,000	3,935,000	426,000	138,000
	\$7,932,000	\$12,708,000	\$54,564,000	\$64,436,000
INDUSTRIAL	\$11,923,000	\$19,462,000	\$163,962,000	\$252,969,000
PUBLIC BUILDING				
City, County, State, Federal and Hospitals	\$76,261,000	\$107,420,000	\$198,405,000	\$373,056,000
Housing	1,549,000	2,122,000	45,183,000	180,229,000
Schools	1,284,000	11,548,000	17,463,000	14,351,000
	\$79,094,000	\$121,090,000	\$261,051,000	\$567,636,000
ENGINEERING				
Dams, Drainage, Earthwork, Airports	\$10,904,000	\$11,880,000	\$154,946,000	\$237,893,000
Federal, County, Municipal Electric Sewers and Waterworks	35,000	1,561,000	1,025,000	5,170,000
	2,965,000	5,149,000	27,004,000	31,487,000
	\$13,844,000	\$18,620,000	\$182,975,000	\$274,550,000
ROADS, STREETS AND BRIDGES	\$5,153,000	\$20,901,000	\$78,566,000	\$115,897,000
TOTAL	\$117,946,000	\$192,781,000	\$743,118,000	\$1,275,488,000

South's Construction By States

	October, 1944 Contracts Awarded	October, 1944 Contracts to be Awarded	Contracts Awarded First Ten Months 1944	Contracts Awarded First Ten Months 1943
Alabama	\$1,914,000	\$5,676,000	\$31,071,000	\$45,313,000
Arkansas	60,383,000	60,826,000	67,244,000	32,100,000
Dist. of Col.	1,066,000	1,045,000	17,423,000	14,859,000
Florida	5,533,000	4,454,000	75,504,000	109,628,000
Georgia	5,010,000	3,600,000	46,441,000	82,613,000
Kentucky	1,049,000	2,027,000	20,476,000	31,370,000
Louisiana	3,570,000	10,310,000	52,598,000	70,541,000
Maryland	3,378,000	8,423,000	54,665,000	88,912,000
Mississippi	1,043,000	6,245,000	19,550,000	34,058,000
Missouri	1,889,000	4,553,000	43,093,000	20,294,000
N. Carolina	5,784,000	8,170,000	27,184,000	53,270,000
Oklahoma	431,000	8,389,000	20,223,000	101,946,000
S. Carolina	695,000	1,459,000	19,187,000	46,298,000
Tennessee	1,359,000	10,208,000	22,955,000	88,044,000
Texas	15,732,000	32,119,000	136,756,000	315,735,000
Virginia	7,063,000	24,878,000	77,836,000	70,807,000
W. Virginia	1,987,000	389,000	19,112,000	9,840,000
TOTAL	\$117,946,000	\$192,781,000	\$743,118,000	\$1,275,488,000

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DECEME

\$500,000 Rustless Addition Placed in Operation

RUSTLESS Iron and Steel Corporation, Baltimore pioneer in manufacture of stainless steel, placed its new \$500,000 hammer shop in operation in November, thus increasing its production of war materials and raising its potential output of peacetime products.

Located on the west side of Edison highway, where the company operates its north and south plants, the new 300 by 52-foot steel and corrugated asbestos protected metal structure is equipped with two air hammers—one a 12,000-pound unit and the other a 5,000-pound machine moved in from another part of the plant.

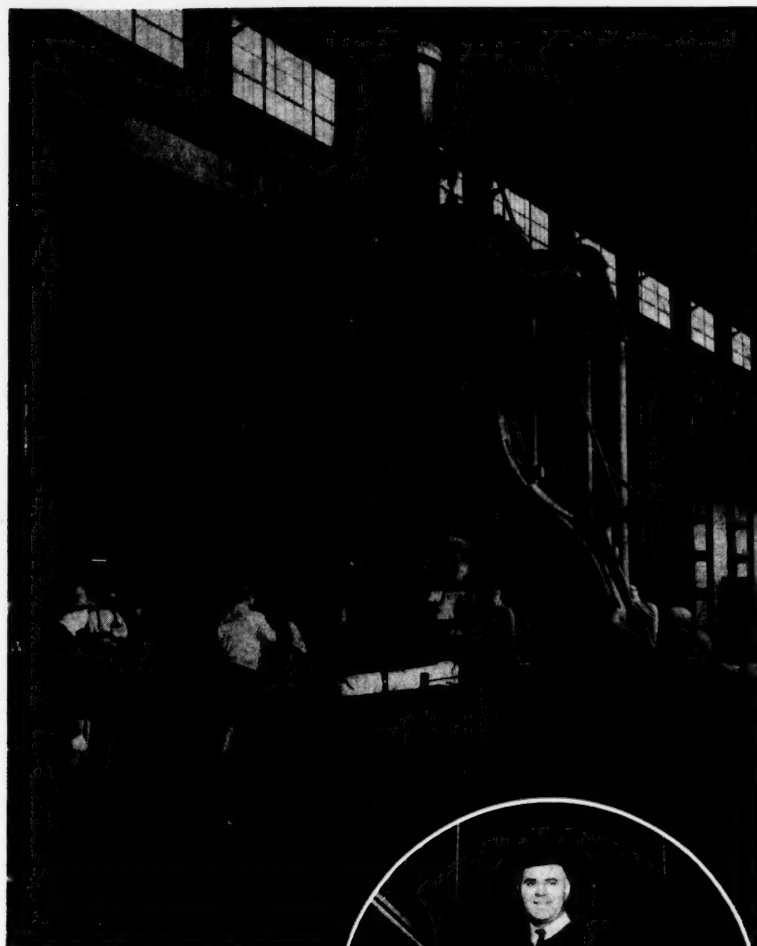
The new facilities supplement the work of the rolling mills and make possible the hot working of unrolled stainless steels of higher alloy quality. Oil-fired furnaces heat ingots up to 2,500 degrees for the hammering operations. Piston force of the large hammer is 57,000 pounds.

The shop is equipped with a 15-ton crane with a five-ton auxiliary block. A Chicago compressor driven by a 650-horsepower, 2,200-volt motor delivers 3,300 cubic feet of air to the larger hammer. Air for the smaller hammer is supplied at a 2,700 cubic foot rate by an Ingersoll-Rand compressor operated by a 472-horsepower motor.

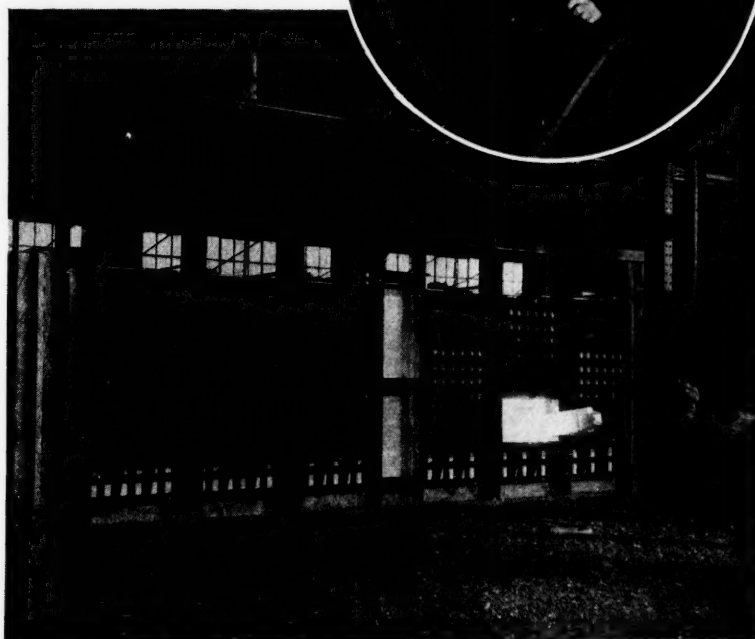
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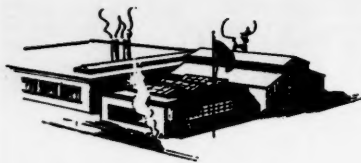
Top — New 12,000-pound air hammer in action at the new \$500,000 hammer shop finished last month by Rustless Iron & Steel Corp., Baltimore. The unit is shown cogging a large ingot. Its piston force is 57,000 pounds.

Lower—Oil-fired furnaces are capable of heating ingots up to 2,500 degrees for the new facilities.



Circle—Russell E. Moran, formerly in charge of forging operations, is the superintendent of the new hammer shop.





Southern Industrial Expansion--November

ALABAMA

Mills—Crest-Tex Mills, Inc., New York, acquired Haleyville and Russellville mills of Alabama Mills, Inc., Birmingham.

AUBURN—cold storage locker—State of Alabama for Auburn, plans cold storage locker building, cost about \$40,000.

BIRMINGHAM—addition—Day & Richardson, Birmingham, have contract at \$20,000 for addition to Marson Manufacturing Co., owner.

BIRMINGHAM—equipment—Defense Plant Corp., closed contract with Jack Cole Co., Inc., to provide transportation equipment for operation in Eastern States, approximately \$115,000.

BIRMINGHAM—facilities—Defense Plant Corporation, authorized an increase in its contract with Malone Freight Lines, Inc., Birmingham, to provide additional automotive equipment, approximately \$85,000, resulting in over-all commitment of approximately \$238,000.

MONTGOMERY—stockyards—Capital Stockyards, Inc., incorporated with \$250,000 capital, breaking ground for plant.

ARKANSAS

Electric lines—Arkansas Utilities Commission, Little Rock, granted to Arkansas Power & Light Co., Pine Bluff, permit to extend its rural electric lines 82.7 miles in White County, cost \$66,000.

HARRISON—warehouse—A. C. Christeson and W. H. Jones acquired 4-acre tract for industrial center, cost \$100,000.

CAMDEN—extension—Missouri Pacific R. R., applied to Interstate Commerce Commission, for permission to construct a 5-mile extension to serve navy ordnance plant.

JACKSONVILLE—electric lines—First Electric Cooperative, has \$75,000 allotment from Rural Electrification Administration for additional electric lines.

LITTLE ROCK—dam—States Utilities Commission, Little Rock, received application from Southwestern Water Co., Inc., for certificate of public necessity and convenience to construct earthen dam across Two Prairie bayou on borders of Lonoke and Prairie counties, \$120,000.

LITTLE ROCK—plant—G. W. May Construction Co. has contract for plant for United States Time Corp., of Waterbury, Conn., manufacturers of alarm clocks, watches, etc., \$54,575.

LITTLE ROCK—power plant—Arkansas Power & Light Co., contemplates generating plant, 320,000,000 kwh capacity, in vicinity of Little Rock; cost \$4,000,000.

NEWPORT—electric lines—Farmers Electric Cooperative, has \$50,000 allotment approved by Rural Electrification Administration for construction of electric lines.

POCAHONTAS—factory—Brown Shoe Co., St. Louis, Mo., considering erection of branch plant; \$140,000; location in Pocahontas considered possibility.

SALEM—electric lines—North Arkansas Electric Cooperative has \$50,000 allotment approved by Rural Electrification Administration for additional electric lines.

STAR CITY—transmission line—REA allotted \$250,000 to C. & L. Rural Electric Cooperative for 245 miles of lines.

STUTTGART—electric lines—Riceland Electric Cooperative, filed application with State Utilities Commission to construct 240 miles electric lines in Prairie, Monroe, Lonoke and Jefferson counties, to cost approximately \$225,000.

FLORIDA

BARTOW—plant—Bartow Growers' Co-Operative has received WPB clearance for materials to construct processing plant and warehouse.

JACKSONVILLE—equipment—Defense Plant Corp. closed contract with Acme Freight Lines, Inc., to provide automobile transport equipment, at cost of \$100,000 for operation in Gulf Coast States area.

JACKSONVILLE—expansion—Newth-Morris Box Corporation plans doubling capacity of plant.

LAKE CITY—plant—Aycock-Lindsey Corporation of Shamrock, plans central distillation plant; draw gum from 100,000 acres.

MARIANNA—plant—Alapex Shirt & Underwear Co., operators of plants at Crestview plans establishing plant.

GEORGIA

Equipment—Defense Plant Corp. increased contract with Watkins Motor Lines, Inc., Thomasville, to provide additional automotive equipment for operation in Georgia and Atlantic Seaboard States to cost approximately \$35,000.

ATLANTA—addition—Atlantic Ice Co., Atlanta, will construct additions to ice plant.

ATLANTA—building addition—C. R. Justi, Atlanta, has contract for addition for Atlanta Laundries, Inc.

ATLANTA—dairy building—Gilbert Beers, Atlanta, has contract at \$40,400 for dairy building for Atlanta Dairies, Inc.

ATLANTA—dairy plant—Aristocrat Dairies, Inc., Atlanta, construct addition to present building, \$25,000.

BRUNSWICK—improvements—U. S. Maritime Commission approved expenditures up to \$100,000 to repair hurricane damage at J. A. Jones Construction Co.'s shipyard.

COMMERCE—addition—Fennell Construction Co., Gainesville, Ga., has contract for addition to Harmony Grove Mills.

DALTON—chenille mill—J. R. and T. A. Whitener, operating as Acme Chenille Co., will establish bedspread plant.

DUBLIN—locker plant—Mackey-Sessions Ice Co. closed contract for materials and equipment to install freezer locker plant.

LEESBURG—freezer locker—J. B. Cannon and E. A. Crotwell contemplate freezer locker plant in Lee county.

SAVANNAH—port terminals—Wallace Clark & Co., New York, began preparatory surveys of Savannah rivers harbors and industries in connection with proposed state port terminals here and at Brunswick.

KENTUCKY

ASHLAND—railroad expansion—Chesapeake & Ohio Railroad announced an expansion program of \$2,548,000 on Big Sandy Division of Road, part of which is already started.

CATLETTSBURG—expansion—Utilities Elkhorn Coal Co., Pikeville, has made a preliminary survey of the advantages of development of Catlettsburg property.

LOUISVILLE—building—Courier-Journal and Louisville Times Co. acquired site for establishment of postwar publishing plant and office building.

LOUISVILLE—distillery—Ferneliff Distillery Co., incorporated with \$50,000 capital, install distillery.

LOUISVILLE—expansion—Southern Bell Telephone & Telegraph Co. plans \$65,000 addition to Franklin exchange.

LOUISVILLE—line—Williams Brothers Corp., Tulsa, Okla., has contract for 65-mile pipe line as authorized by Federal Power Commission for Louisville Gas and Electric Co.

MIDWAY—plant—Defense Plant Corporation, construct a \$275,000 plant at Midway, to be operated by Park & Tilford Distillers, Inc.

LOUISIANA

ABBEVILLE—locker plant—Louis M. Thomas plans frozen food locker plant; 250 lockers.

ABBEVILLE—plant—Louisiana Public Utilities constructing 30-ton daily capacity ice plant.

BASTROP—freeze plant—Higgins Industries, New Orleans, has contract for freezer locker plant for Freeman Brothers.

BATON ROUGE—plant—Chemical Division of War Production Board approved construction of a hydrofluoric acid plant.

HOMER—electric lines—Claiborne Electric Cooperative, Inc., has \$300,000 allotment approved by Rural Electrification Administration, for additional electric lines.

LAFAYETTE—electric lines—Southwest Louisiana Electric Membership Corp. has allotment of \$60,000 from Rural Electrification Administration for additional electric lines.

LAKE CHARLES—locker plant—Thomas Bryan and Associates, Lafayette, will construct frozen food locker plant; \$40,000 for Calcasieu Frozen Foods, Inc.

MONROE—freezer plant—Louisiana Ice Service, Inc., plans erecting deep freezer locker plant.

MONROE—improvements—Harmon Construction Co., has contract at \$154,500 for power plant improvements.

NEW ORLEANS—addition—R. P. Farnsworth & Co., Inc., New Orleans, has contract at \$115,000 for addition to aircraft manufacturing plant.

NEW ORLEANS—bakery—General Bakery Co., New York City, considering erection of baking plant.

PATTERSON—pipe lines—Texas Co., of New Orleans, applied for War Department permit to install and maintain three 4-in. waste gas pipe lines in East Cote Blanche Bay.

MARYLAND

BALTIMORE—addition—John W. O'Day, has contract for addition for Eckel's Ice Cream Co.

BALTIMORE—building—Armiger Construction Corp. has contract at \$45,000 for cold storage building, Albert F. Goetze, Inc., owner.

BALTIMORE—plant—Defense Plant Corp., United Distillers of America, Ltd., lessee, erect \$90,000 building.

BALTIMORE—plant—U. S. Gypsum Co. plans plant on 15-acre site back of pier; pier will contain unloading facilities for the plant; engineering studies underway.

FROSTBURG—transmission line—Potomac Edison Co., Hagerstown, constructing high tension line from Frostburg to Grantsville.

MISSISSIPPI

BRANDON—cold storage—Rankin County Cooperative let contract to Better Living Co., Jackson, for chill room and meat aging equipment in local storage plant preliminary to installing quick-freeze food lockers.

GULFPORT—plant—J. C. Rich erect frozen food locker plant; to contain 502 lockers; investment \$50,000.

PASS CHRISTIAN—locker plant—Mires R. Jackson plans refrigerated food locker plant, adjoining present plant.

PHILADELPHIA—glove plant—City voted to issue \$80,000 bonds for building to house glove plant to be operated by Wells-Lamont Co. of Chicago, Ill.

MISSOURI

Expansion—REA allotted \$25,000 to Howard Electric Co-Operative of Fayette to complete construction of short extensions.

Expansion—REA allotted \$120,000 to Sac-Osage Electric Co-Operative of El Dorado Springs, for lines in Cadat, Vernon, Dade and St. Clair counties.

CHILLICOTHE—power line—Farmers Electric Co-operative has REA loan of \$75,000

for 82 miles of power lines to serve 155 new consumers in Carroll and Caldwell counties.

EL DORADO SPRINGS—Electric Sac-Osage Electric Co-operative has loan of \$120,000 allotted by Rural Electrification Administration for electric lines in Cedar, Vernon, Dade and St. Clair counties.

FAYETTE—electric—Howard Electric Co-operative has loan of \$25,000 allotted by Rural Electrification Administration for short extensions.

HAYTI—electrification—Pemisot-Dunklin Electric Co-operative, Hayti, has loan of \$65,000 allotted by REA for power lines.

KANSAS CITY—building—Wayne Towel & Linen Supply Co., erecting plant addition; \$30,000; expend \$20,000 for equipment.

KANSAS CITY—equipment—Defense Plant Corp. executed contract with Benson Manufacturing Co. to provide equipment at plant; approximately \$45,000.

LAMAR—electrification—Barton County Electric Co-operative has loan of \$75,000 allotted by REA for power lines.

MILAN—rural lines—North Central Missouri Electric Co-operative, has REA allotment of \$20,000 for power lines in Lincoln, Warren, St. Charles and Montgomery counties.

ST. LOUIS—addition—Century Electric Co. starting factory addition; cost \$23,000.

ST. LOUIS—addition—Elam Contracting Co. has contract for addition for American Venetian Blind Co., cost \$11,000.

ST. LOUIS—addition—George Moeller Construction Co. has contract for furniture factory addition and improvements for Valley Furniture Co.

ST. LOUIS—building—Hudson Chemical Co., \$20,000 plant.

ST. LOUIS—building—St. Louis Independent Packing Co. let contract for utility building.

ST. LOUIS—building—Stauder Construction Co. has contract for addition to factory, for St. Louis Briquette Co., cost \$20,000.

ST. LOUIS—cars—Missouri Pacific Railroad Co. placed order for 1,000 all-steel boxcars with American Car and Foundry Co., cars to be produced at St. Louis plant.

ST. LOUIS—expansion—Bemis Brothers Bag Co. acquired factory building for manufacture of paper bags.

ST. LOUIS—expansion—Monsanto Chemical Co. has building permit for addition; cost \$30,000.

ST. LOUIS—expansion—Union Electric Co. of Missouri plans \$100,000,000 construction program in Greater St. Louis, during 10-yr. program following the war.

ST. LOUIS—expansion—Wagner Electric Co. plans expansion at cost of \$600,000 for building and equipment.

ST. LOUIS—laboratory—Amp Corp. will soon begin construction of research and development laboratory.

ST. LOUIS—plant—Ford Motor Co., Detroit, Mich., plans assembly and manufacturing plant in St. Louis as part of a \$150,000,000 post war expansion plant.

ST. LOUIS—plant—Kaysing Leen Works has site for fabricating plant and office.

ST. LOUIS—warehouse, etc.—J. S. Alberici Construction Co. has contract for office, warehouse and recap plant for M. J. Novoson, \$140,000.

ST. LOUIS—warehouse—Kloster Co. has contract for warehouse addition, for Gereke-Alten Carton Co.; \$18,000.

WEST PLAINS—power lines—Howell-Oregon Electric Co-operative has REA loan of \$20,000 for power lines in Howell and Oregon counties.

NORTH CAROLINA

BURLINGTON—plant—War Production Board granted priority approval of materials for frozen food locker plant by Burlington Freezer Locker Co.

BURLINGTON—textile—Stockholders of Chadbourne Hosiery Mills, Inc., voted to increase total capital of the company to \$1,000,000; new financing will be used to provide the company with funds for expansion program to include modern knitting machines.

BURLINGTON—The White Cottage Products Co., Inc., has building for manufacture of cleaning compound.

DURHAM—locker plant—Quick Freezer Locker Co. has new location for quick-freezer

locker plant; plans call for doubling size of originally proposed unit.

GOLDSBORO—freezer locker plant—Pate-Dawson Co. plans freezer locker plant; 630 units.

JACKSONVILLE—sub-station, etc.—Little Electric Co., Charleston, has contract for sub-station and transmission line, for Jones-Onslow Electric Membership Corp.

LOWELL—addition—Robert H. Pinnix, Gastonia, has contract at \$25,000 for addition to mill for Beannit Mills, Inc.

MARION—repairs—Herman-Sipe & Co., Conover, has contract at \$40,000 for repairs and alterations to manufacturing buildings for Broyhill Furniture Co.

SALISBURY—expansion—John Henry Isenhour, of Isenhour Brick & Tile Co., plans pilot plant for sponge iron.

WILMINGTON—railroads—Atlantic Coast Line Railroad placed order with Tennessee Coal, Iron and Railroad Co. for 93,870 gross tons of rails for 1945 delivery.

WILMINGTON—terminals—Ronald Lane, Mayor, appointed committee to make survey for suitable location for port developments and tobacco warehouses.

OKLAHOMA

Pipe lines—War Production Board and Petroleum Administration approved application of Standish Pipeline Co., and Sohio Petroleum Co., to construct an 18-mile pipeline in Oklahoma at cost of \$205,000.

GUYPON—channel black plant—Godfrey L. Cabot, Inc., Boston, Mass., plans building for Defense Plant Corp., when permit is granted, a channel black plant near Guyton; \$1,500,000.

OKLAHOMA CITY—extension—Sharman & Allen, Houston, Texas., has contract for 50 miles 16-inch gas lines, loop pres. system from Shidler in Osage County, Oklahoma, to Caney, Montgomery County, Kansas.

TULSA—chemical unit—Dowell, Inc., of Tulsa and Midland, Mich., started work on combined plant for management, manufacturing and operating activities on 20-acre tract.

TULSA—expansion—Travelodge Corp., Charles R. Smith, Pres., acquired additional tract for expansion; post war.

SOUTH CAROLINA

CHARLESTON—track—V. P. Loftis, Charleston, has contract at \$16,080 for railroad spur track at Charleston.

CHARLESTON—warehouse—S. M. Canaday acquired plant and equipment of Middleton Compress & Warehouse Co.; will be operated by Chesshire, Sullivan & Co., Inc.

HARTSVILLE—locker plant—B. E. Benson; erect \$40,000 freezer locker plant.

PINOPOLIS-CONWAY—line—E. C. Bridges, Heath Springs, has contract at \$104,000 for transmission line, Docket No. 4329-P-R; South Carolina Public Service Authority, Columbia, owner.

TENNESSEE

CARTHAGE—plant—Borden Milk Co. will open cheese plant.

CHATTANOOGA—expansion—Sharp Battery and Electric Co. increased capital from \$50,000 to \$100,000 to be used for expansion.

LAFAYETTE—cheese plant—Cudahy Packing Co., constructing cheese plant.

MEMPHIS—gas—Federal Power Commission issued a certificate of public convenience and necessity to Memphis Natural Gas Co., for additional facilities in Arkansas, Mississippi and Louisiana for maintenance of adequate service to its present customers; construction to begin not later than Dec. 15; estimated over-all cost of proposed facilities is \$2,553,000.

MEMPHIS—pickle plant—T. L. Brice, Sherman, Texas, has site for pickle plant.

TEXAS

ALTMAN—plant—United Engineers & Construction Co., Houston and Philadelphia, have contract for carbon black plant; \$1,200,000; Continental Carbon Co., owners.

BEAUMONT—expansion—Defense Plant Corp. authorized increase in contract with Southern Acid & Sulphur Co., Inc., St. Louis, Mo., to provide additional equipment at plant in Beaumont, at cost of approximately \$25,000 resulting in overall commitment of approximately \$780,000.

BROWNSVILLE—addition—Robertson & Burke, Harlingen, has contract for packing plant addition; Associated Growers of Brownsville, owners.

BROWNSVILLE—freezing plant—Pan American Freezers, Eagle Pass, soon call for bids for erection of quick-freezing plant; \$250,000.

CHAMBERS COUNTY—plant—Glenn H. McCarthy, Houston, let contract to Stone & Webster Engineering Corp., Boston, Mass., for \$1,000,000 plant in Chambers County at Winnie; manufacture gasoline.

DALLAS—electric station—Ebasco Services, Inc., New York, has general contract for extension to Mountain Creek Power Plant, total cost, including equipment, about \$2,500,000.

DALLAS—factory—Robert E. McKee, of Dallas, has contract for factory for Pratt Paint & Varnish Co.; \$34,000.

DALLAS—factory—Vulcan Bearing Co., plans factory.

DELEON—plant—Charles Ross Construction Co., Gorman, has negotiated contract for frozen food locker and processing plant.

DENTON—power line—Denton County Electric Co-operative plans rural power line in Denton, Wise, Grayson, Cooke, Collin and Tarrant counties.

EDINBURG—addition—Polis & Hagan plans packing plant addition.

FORT WORTH—factory—John W. Padgett, has contract for factory; cost, \$15,000; C. M. Grubbs, Fort Worth, owner.

FORT WORTH—plant—E. B. Sneed, Austin, has contract for construction of plant; cost, \$50,000; Hobbs Manufacturing Co., Fort Worth, owners.

HARLINGEN—chemical plant addition—Costal Chemical Co., Inc., Middleport, New York, plans addition to chemical plant.

HOUSTON—addition to packing plant—George Kennedy & Sons, Houston, have contract at \$21,200 for addition to packing plant, Houston Packing Co., Houston, owners.

HOUSTON—dock, etc.—American Construction Co. has contract for loading dock and elevator, 600 N. San Jacinto St., for Peden Iron & Steel Co.

HOUSTON—expansion—William Cameron & Co., Inc., plans postwar expansion on tract of 5 acres.

HOUSTON—factory—I. Fallis, Houston, has contract for mattress factory, approximate cost \$10,000.

HOUSTON—machine shop—H. L. Sinclair, Houston, construct machine shop.

HOUSTON—plant—Defense Plant Corp. executed contract with Nyotex Chemicals, Inc., Cleveland, Ohio, to provide plant facilities in Houston; \$470,000.

HOUSTON—rebuilding—I. & G. N. R. R. Co., Houston, plans rebuilding freight depot, 117 San Jacinto St.; \$100,000.

HOUSTON—rice-drying plant—Southern Warehouse Corp. plans rice-drying plant; cost \$200,000.

HOUSTON—rice-drying plants—American Rice Growers' Association, Houston, plans 22 rice-drying plants in Texas Gulf Coast area; cost from \$30,000 to \$120,000 each.

HOUSTON—warehouse—Houston Natural Gas Corp., Houston, plans warehouse; cost, \$150,000.

KARNACK—plant—Monsanto Chemical Co., St. Louis, Mo., plans \$8,000,000 rocket plant; plant authorized by Army Ordnance Dept.

McALEN—plant—Brown & Root, Inc., Houston, has contract for dehydration plant; Southwestern Sugar & Molasses Co., owners.

MIDLAND—pipe line—Metropolitan Natural Gas Co., Midland, reported, planning 26-in. pipe line to transport natural gas from Permian Basin of West Texas to Los Angeles; \$40,000,000.

MISSION—remodeling—Barrett & McBridge, Mission, remodel packing plant.

ODESSA—carbon black plants—Ford, Bacon & Davis, New York, has contract for 2 carbon black plants 6 miles west of here; plants will be under supervision of Defense Plant Corp. and leased to United Carbon Black Co., Inc., of Charleston, W. Va.

ODESSA—equipment—Defense Plant Corp. authorized acquisition of equipment for construction of plant facilities near Odessa, at cost of approximately \$2,750,000; United Carbon Co., Inc., Charleston, W. Va., will operate.

(Continued on page 66)

Business Briefs

GENERAL. 24,396,261 to 21,267,416, 432 to 99; the earth, though it quake, keeps right on turning; complacent stock market quaked not a quake on day after election; so back to work.

Hint to post-war catalog getter-uppers: General Electric will sell at pre-war price levels, advance pricking of inflation balloon.

Hint No. 2: OPA snooped around, found that folks wanted 4.3 million washing machines, 4 million electric irons, 3.8 million refrigerators, 3.2 million cook stoves, 2.7 million radios, 2.4 million vacuum cleaners, 2.4 million sewing machines, 1.5 million fans, 1.2 million heating stoves, .8 million water heaters; "spokesman" says about 60% of 1941 volume will be yield of first year after V-E Day; despite G.E., manufacturers prices to be, says a guesser, 10 to 15% higher than in March, '42; but retail prices will increase only exact amount the maker gets extra.

Hillman vini and vidi, now would vinci; CIO indorses world labor union plan; user demand for one toga, one laurel wreath expected.

WLB agrees no approval needed to pay Christmas bonuses up to \$25 or if bonus is same as last year; another ruling enables employers to hire unlimited extra Christmas workers at wages higher than minimum without upsetting year-round hiring schedule for regular employees.

Administration wage policy seems based on two points, one pin, one needle: stick to Little Steel Formula (maximum allowed: 15% above Jan. '41), allow straight time increases sufficient to maintain current weekly wage levels when war production is cut back and 40-hour week restored for workers now putting in longer hours and getting overtime bonus pay; workers work less, produce less, get today's pay (aside; piece price greater, but consumer prices must not rise; neat trick); whole-hog AFL wants 30-hour week.

Madame Perkins' Dept. says average weekly earnings of manufacturing industry workers in Sept. was 1.5% better than August, 4% over Sept. '43; average workers had \$46.25 weekly in Sept. (hourly average, \$1.03); then comes National Industrial Conference Board (after asking 25 industries), says hourly average was \$1.08 (83.1% above 1929 level).

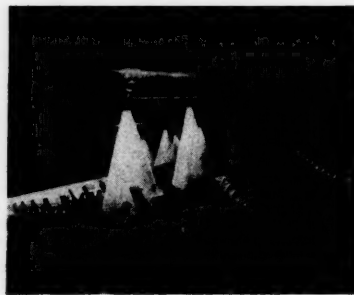
All-knowing NICB also says living costs (for average family of wage earners, lower-paid clericals) went up .1% from Sept. to Oct.; food was cheaper by .4% but housing (.1%), clothing (.4%) and sundries (.5%) were up; cost 1.4% extra to get through this year's October

than last year's; purchasing value of the dollar in terms of 1923 goods was 95.1c in Oct., 1.3c less than a year ago.

F.D.R. wants simple inauguration on White House's South Portico (will save an estimated \$23,000); on Sept. 30 public debt was \$211,063,598,633.

Bonanza: industry is getting sore thumbs flipping through Patent Office files in search of post-war ideas; since 1790 2.3 million inventions got patents; in year ended last June 30, Patent Office sold 5 million printed copies, is 2 months behind on orders.

Philanthropic Internal Revenue Bureau has guide telling all about excess



profits tax relief: can be had by writing Sup't. of Documents, Gov't. Printing Office, Washington 25; purpose: to speed action on 34,000 claims for relief (involving \$12 billions).

Drug store sales this year, war notwithstanding, will hit \$2.8 billions, 8 per cent above last year, 79 per cent over '39; reasons: no important shortages, more prescriptions dosed up, more women making money, buying enticers; great demand for vitamins; drug stores also becoming more like old-time crossroads general store.

New life insurance for Oct. greater by 3.3% than same time last year, for 1st 10 months this year was 6.2% bigger than in last year's 1st 10; ordinary insurance was up 12.2 over Oct. '43, industrial insurance was up .1%, group insurance dived 26.3%; sum of Oct. fire loss was \$32,173,000, 8% costlier than in Oct. last year; losses to flames in '44's 1st 10 months were about \$41 millions stiffer than in 1st 10 of '43; juke box in Tulsa got "hot," burned up.

September's record of 1,544 terminations of fixed price contracts largest since June; of these 1,416 were settled; of 29,354 contract cancellations to date, 25,560 are settled; of remaining unsettled 4,000, three-fourths hang fire because contractors fail to submit claims.

WMD Byrnes fumes that civilian goods production under "spot" okays may be halted if workers continue to quit jobs; such output totaling \$291 millions in '45 has gotten green light; okay applications total 1,914, n. g. ones 464; says WPB's operations vice-chairman, "demands for re-conversion are definitely delaying the end of the war;" military procurement cut-backs after V-E Day now expected to be minor, not drastic as long-time thought; will need plenty to throw at Nips.

Unstable Stabilization Director Vinson takes breath, says we must hold prices down during the war; takes another, says we must let wages rise after the war; fine line there.

Friend in need: Senate Finance Committee Chairman George of Georgia proposes lower post-war taxes, immediate whittling of public debt; thinks minimum possible Federal budget for early post-war will be about \$16-17 billions, maximum \$21-22 billions; current revenues are around \$46 billions.

Congress wants post-graduates snoopers; makes move to streamline committee's investigations, would give one standing group powers of a score-plus of special panels; 33 special and regular House investigating committees now Sherlocking; Speaker Sam Rayburn says, "I never saw an investigation that gave birth to any legislation, either here or over in the Senate;" no news yet of anyone who has.

Department of Commerce figures national income for '44's first half hit new high annual rate of \$158 billions (for '43 was \$147.9 billions); gross national product now running at \$196 billions annually (\$186.5 billions in '43); individual's net savings last year amounted to \$33 billions, 17.9% over '42, 132.4% better than '41.

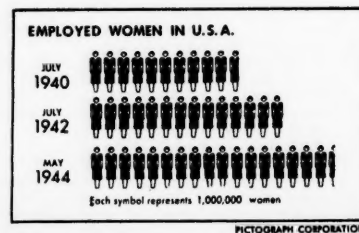
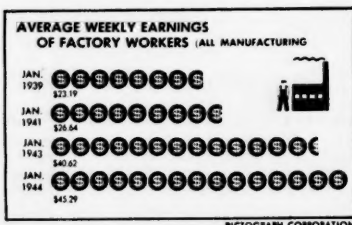
MANUFACTURES. Manufacturing activities continue to ease off; for 5th straight month, wheels turned slower than at same time last year; Sept. output was 6.4% under Sept. '43; '44's production through Sept. was less (0.7%) than for similar period a year before.

Bureau of Labor Statistics: figuring factory workers only (about 16 million of them), since Jan. '41, gross weekly earning before deductions were up 71% (helps: overtime, incentive pay); net spendable weekly earnings up 47% for worker with wife, 2 children, 31% for person without dependents; straight time for hourly earnings up 42%; general wage rate increases up 16%; wage rates generally up 28%.

Cost of living, finds F.D.R.'s. Special Committee to add it up, has risen 29 to 30% during the war; unions (yelling for higher pay) making more noise.

Long-named Office of the Coordinator of Inter-American Affairs says coming industrial expansion in Central and South America will make potentially a market for \$10 billions in new and used machinery; U. S. will get about 60% of orders (\$3.68 billions for new equipment, \$2.1 billions for replacements); Brazil

(Continued on page 54)



18,000 gallon *Pressure Vessel*

**provides efficient
storage for propane**



The pressure vessel shown above was designed and fabricated at one of our plants for the storage of propane for a distributor marketing this product. It holds 18,000 gallons.

IN the marketing of propane, as well as at industrial plants where this gaseous hydrocarbon is used, it is necessary to provide adequate storing facilities. Welded steel pressure vessels like the one shown above, designed and fabricated at our plants, are serving as efficient "storehouses" for propane as well as countless other materials produced at refineries, chemical plants and synthetic rubber plants.

The designing and fabricating of steel tanks has been a specialty with us for many years. At our Birmingham plant complete facilities for stress-relieving pressure vessels are available to

industry. Vessels up to 13 ft. 2 in. in diam. and as long as can be shipped may be handled in the stress-relieving furnace. At all of our other plants we are equipped for x-raying and for fabricating pressure vessels to meet API-ASME specifications.

If, in planning expansion or modernization programs, you find that welded steel pressure vessels or other types of storage tanks can aid you in your production—write our nearest office outlining your requirements. We are in a position to work with you on both today's and tomorrow's needs.

CHICAGO BRIDGE & IRON COMPANY

Birmingham 11530 North Fiftieth Street
Houston 15614 Clinton Drive
Tulsa 31611 Hunt Building
New York 63313-165 Broadway Building
Cleveland 152216 Guildhall Building

Plants in BIRMINGHAM, CHICAGO



Chicago 42106 McCormick Building
San Francisco 51040 Rialto Building
Philadelphia 31619-1700 Walnut Street Building
Havana402 Edificio Abreu
Washington 4703 Atlantic Building

and GREENVILLE, PENNSYLVANIA

Business Briefs

(Continued from page 52)

just placed orders for 2.5 million spindles for immediate delivery, will want another 6.5 million during next 12 years.

Tarzans: synthetic vitamins being turned out at rate of 1,250 short tons yearly; 51% go to U. S. citizens, 14% to the armed forces, 35% to our Allies.

Button, button, who's got the cigarettes?; questions asked in Washington bring these (not guaranteed) answers: subtracting 91.8 billion cigarettes sent to servicemen, 238 billions were left for civilians (only 3.2% fewer than in '43); no "popular brand" smokes are lost to lend-lease; manufacturers' stocks of burley and flue-cured tobaccos are ample for 18 months (without this year's crop); cigarette production doubled since 1938; in this year of shortage (?) 72 billion more cigarettes were turned out than in '43; black markets expanding.

WMC, says Chief McNutt, may rule tobacco processing essential, grant it high manpower priorities; average consumption per person in U. S. last year was 94 packs; cigars too are hens' teeth (91 million go monthly to the armed forces).

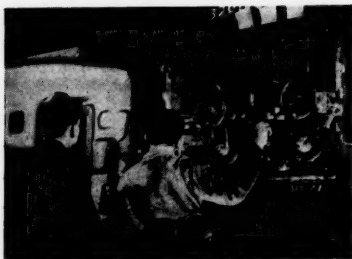
OPA (Nov. 24) promises cuts in clothing prices, more low-priced garments on retail shelves; decided to affix big-printed price tags on each of 30 million items of children's clothing to be made this quarter; cooked up an order designed to stop "fancying-up" and "overfinishing" (by reducing margins of textile finishers).

Otherwise, cotton textile makers have 3 basic troubles: demand for higher wages, OPA's basing of ceiling revisions on average earnings of 1936-39 period, and the move to export raw cotton at the world price (domestic producers must pay pegged Gov't. price).

Many forebodings of a paper shortage through '45; over-all Sept. yield of paper and paperboard (1,420,918 tons) was below August (1,518,922 tons); in Oct., newsprint production piled up 344,198 tons (shipments totaled 358,563 tons); stocks of all North American makers (Oct. 31) flopped to new low of 89,423 tons against 129,467 tons on same day last year; Canadians had 45,028 tons, Newfoundlanders 37,761, us 6,634.

Goodrich tire man thinks synthetic rubber can be produced (on peacetime basis) for 10.7c per lb.; while pre-war price of natural rubber was 22c, post-war delivered price can be cut to 12c; will take 10-20 years to make synthetics equal natural stuff, says one of the abundant "authorities."

To settle it, make your own tires; Butaprene S is 3 parts butadiene, one part styrene.

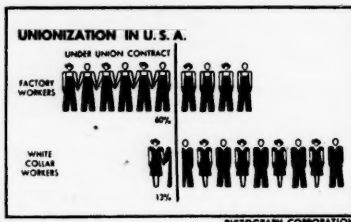


Oct. production of steel ingots and casting steel was 7.5 million tons, highest monthly output since May; output of '44's 1st 10 months was 74.7 million tons, in same period last year was 74.2 millions; country's steel-making capacity, after shot in arm by Mars, is 94,054,550 tons annually.

Seasonal decreases cut factory cheese production to 81.9 million pounds in Sept., meagerest since May; 83.7 million pounds were stirred up in last year's Sept.; cold storage stocks last Sept. were down to 187 million pounds, were 218 millions in Sept., '43.

MINERALS

Texas, for 9th straight year, in '43 lead nation in mineral production, was first State since '26 to pass billion \$ mark (\$1,116,056,000); was first last year in producing crude petroleum (\$721,400,000), natural gas, natural gasoline, liquefied petroleum gases, sulphur, pebbles for grinding, helium, magnesium compounds, strontium minerals (for military pyrotechnics) and sulphur ore; yield of some others are militarily shush-shush.



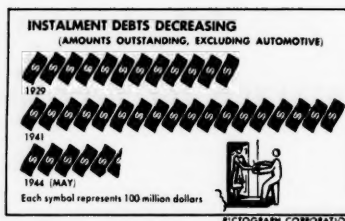
Packaged fuel due next, drug stores probably making counter space for it; called "white glove" fuel because of its cleanliness, is made of non-marketable hard and soft coals, processed into 3-inch cubes weighing about 1 lb. each.

U. S. crude oil barreling amounted to 4,736,300 daily (4,450 over preceding week) in week ended Nov. 18; Railroad Commission gave okay to Texas statewide oil order designed to bring daily flow of 2,134,978 barrels in December.

New tricks in making liquid petroleum products from dry gas; gas at well-head worth more so used than that sold for fuel; in processing gas's methane into gasoline (87 octane), natural gas worth twice fuel gas.

Natural gas industry and Federal Power Commission at dagger's point over issue of "end-use" control (gov't. attempt to concrete a public policy toward gas); fuel men fear it may lead to Federal butting-in on all fuels.

October shipments to manufacturers of domestic and foreign copper totaled 126,590 tons (in Sept., 118,054); from domestic sources came 91,122 tons (87,963 in Sept.), from foreign sources came 35,468 tons (30,091 in Sept.); refined copper production in Oct. summed up to 89,068 tons, a trifle less than Sept.; also a bit under Sept. were stocks of refined copper held by producers and custom smelters on Oct. 31 (49,358 tons); this ignores big stockpiles of U. S. Gov't. agencies.



New wrinkle in getting aluminum from clay: pretty complicated but works; involves "percolating" clay with sulphuric acid to form sulphate salts of aluminum and iron; further phenagling banishes iron, silica, other impurities, leaving alumina which is then electrolyzed; one plant averaged a purity of 99.16%.

AGRICULTURE

American Bankers' Ass'n. asked 11,000 rural banks to help farmers fight inflation and "farm land boom"; assets of U. S. farmers jumped \$29 billions since '40, are now around \$83 billions (cash, liquid assets, \$28 billions); increases in farm acreage worth summed up to about \$12 billions, brought farm real estate value up to \$45.6 billions; farmers amazingly owe only \$9 billions.

Mid-west United Farm Agency (80 agents and a detailed catalog giving minute intimacies on each farm offered) reports tremendous mail-order farm buying; heedless emphasis of buyers is on land, not price.

On Nov. 22 the House passed (254 to 16) an expanded farm insurance program it once (June 23, 1943) killed in lesser form; Senate still to act but seems a cinch; would afford immediate insurance on wheat, cotton and flax crops, eventual insurance for anything planted; insurance will be paid on crop losses caused by any natural, insect, fire or gremlin agent a grower ever heard of; rates not available.

Jingle bells: 10-15 million Xmas trees, say U. S. Forest Service counters, are or will be on market; Idaho farmer can't get rid of his 2,000 turnips, even neighbors won't have them; they average better than 7 lbs. each.

Line forms to the right: last item on farm machinery list not already free from rationing (corn pickers) now unfettered too (WFO 14, Supp. Order 1, revoked).

Feeding of cattle for better beef will, it is said, continue on reduced scale this winter and coming spring; narrow spread between prices for unfinished and fattened cattle is reason.

All Kentucky needs to become national center of purebred livestock, says editor of livestock breeder's magazine, is to breed a new type of meat hog to meet demand for lean and tasty pork; said animal would weigh 200 lbs. in 6 months, be halfway between long and lardy-legged types; Kentucky (with center around Vanceburg) already excelling in catemount production.

Come to the Fair: Florida Brahman (Continued on page 56)



Another big rush on Long Distance lines this Christmas...

It was a big rush last year. It may
be even bigger this Christmas.

So please help keep Long Distance
lines clear for essential calls on
December 24, 25 and 26.

War still needs the wires — even
on holidays.

BELL TELEPHONE SYSTEM



Business Briefs

(Continued from page 54)

Breeder's Ass'n. will hold show and sale of registered Brahman in Ocala, Feb. 1, 2, 3; All-Florida Fair Ass'n. proposes to stage industrial and agricultural exposition Feb. 5-17.

Tobacco growers get WFA permission to plant in '45 3% more flue-cured, 2% more burley tobacco; OPA tells burley advisory committee ceiling prices on burley tobaccos (types 31) of '44 crop will approximate average grower ceiling of 41c per lb. (89 different grades, 89 separate ceilings); (see O.P.A.-T-2765).

Florida citrus shipment, up to Oct. 27 totaled 1,475,533 boxes of oranges, 1,275,972 grapefruit; in the week ended that day, 607,748 boxes of citrus (1519.4 cars) went to market, hurricanes notwithstanding; during last 5 years 2.5 million orange trees, 420,000 grapefruit trees, were planted; ill wind bloweth: California lemon shortage makes Florida lime merchants happy.

Louisiana citrus growers busy shipping oranges, estimate marketable crop at half million boxes, more oranges than ever before there; Louisianans say their oranges are tastier, thinner skinned, and have as much juice, sugar, nutrition value as those from other states; Florida, Texas, California prepared to argue it.

Items: U. S. lespedeza seed crop for '44 guessed at 266 million pounds, was 163 million last year; R.O.P. requirements for turkeys is 46 eggs for 13 consecutive weeks of lay; peanuts goobering this year will weigh 2,345,730,000 pounds; one Georgia peanut grower (300 acres) got \$48,000 for his; October's grind of corn was 9.9 million bushels; this year's mustard seed harvest was 22 million pounds, due to serious damage by hail and drought was 'way under '43's 34.5 million pounds; flaxseed growing is sick (3,079,000 acres this year, 47.5% lower than last).

During '44-45 season, U. S. production of fats and oils will decline, says Agriculture Dept't., to 10 billion lbs., was record last season (11.2 billion lbs.); 25 to 30% drop in '44 pig crop responsible; freeing of France, Belgium, Holland, and Italy adds 2 billion lbs. to demand on limited U. S. resources; Xmas candles are scarce.

FINANCE-TAXATION. Last installment on 1944 individual income taxes not due this time until Jan. 15; had to be on the line by Dec. 15 last year; Xmas trade expected to prosper.

Outgo won't stop with the war; fourth term will set fast pace in non-war spending, Congress being agreeable; old continent rehabilitation and job-making export boom will take about \$16 billions in foreign "loans"; Export-Import Bank, \$5 billion; special loans to Britain, others, \$5 billion (yearly for a time); world bank, currency stabilization plans, \$5.9 billion; here at home, domestic projects will soak up an extra \$10-15 billions; making a grand total (minus war and regular Federal expenses) of \$26-31 billions.

In F.D.R.'s 1st and 2nd terms, the now shopworn New Deal scattered \$26.6 billion and \$34.6 billion, respectively, for all purposes; our war expenditures in October

were \$7,447 million, \$343 million (or 4.8%) over Sept.

Securities and Exchange Commission studied 16 industrial groups making wartime products (267 companies), found total net profits after taxes increased 10% in '43 over '42; net reported by the 267 was \$546,000,000 (total sales: \$13,860,000,000) on total assets of \$11,351,355,000; on other hand, publicly reported cash dividends in U. S. during October were \$297.4 million 2.7% under the \$305.8 million reported in Oct. '43.

Senator George again: wet blankets, "prospects for any substantial change in tax rates in 1945 are very remote"; capital gains taxation may be chewed on by

present Congress but even sanguinary dreamers don't expect action; excepting allowances on rapid depreciation of new plants and facilities; something may be done about that; by the way, U. S. Tax Court opines that outfits which in early war days held earnings for wartime expansion should not be penalized by tax on undistributed earnings.

Administration (Nov. 27) "requested" Congress to leave social security statutes alone (2% on Jan. 1); also showed it planned to push "cradle-to-grave" program, calling for tax of 6% on employees and employers alike; no figures available on how many firms employing more than handful net 6% of payrolls.

Ingalls Launches 58th Liner

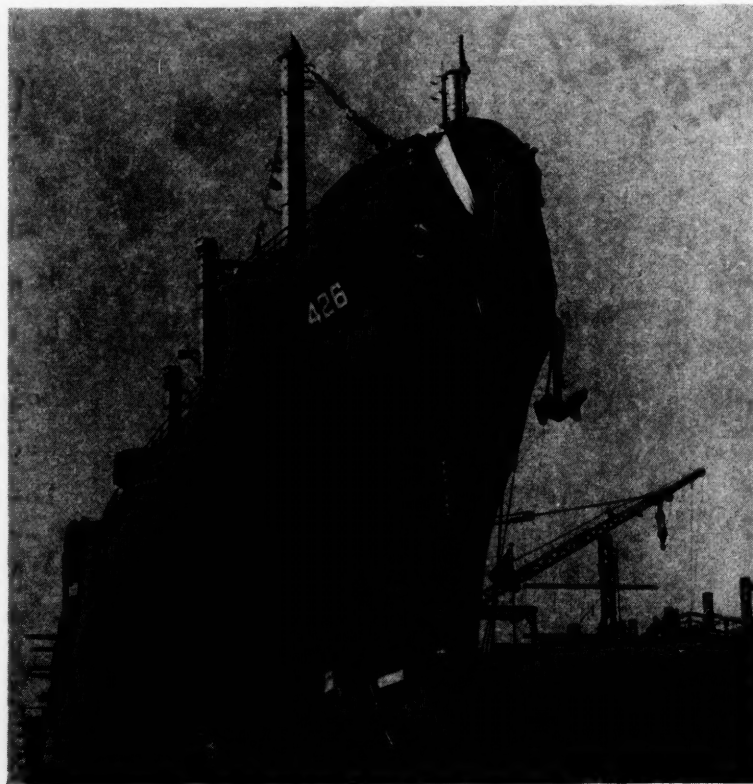
(Continued from page 45)

least two U-boats and damaged others. The Pursuer's planes broke up an aerial attack on a valuable Atlantic convoy, shooting down two of the German planes and damaging a third before the others fled.

The multiple smashes that Pascagoula-produced ships have taken at the Axis might well serve as a report of Ingalls' all-out war activities. Pioneer in the 100% welded

construction of giant ocean liners, Ingalls has built submarine and seaplane tenders, netlayers and troopships, as well as aircraft carriers and combat transports.

While concentrating on the construction of ships for war, Ingalls is not losing sight of a long-range program which calls for the continuation of shipbuilding at this southern shipyard long after the war is won.



MANUFACTURERS RECORD FOR

DECEMBER

BASIC

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STEEL feeds the soil that feeds the nation!



BASIC SLAG! Many southern farmers think as highly of it as doctors do of penicillin. That's because it has done such an amazing job in helping to revitalize thousands of acres of farm land, previously exhausted by ruinous farming methods.

For years the devastating "one-crop system" had been robbing vast acreages of southern soil of the vital mineral elements which support plant growth. Cotton or tobacco raised in the same fields year after year had reduced the fertility of many southern farms to the point where the annual yield hardly paid for the seed and labor that went into production.

Among the things that agricultural leaders found in their efforts to build

up southern agriculture was that Basic Slag—a by-product of open hearth steel, as manufactured at the Ensley (Alabama) Works of the Tennessee Coal, Iron and Railroad Company—contained several important minerals, including phosphorus and lime. These elements are needed to grow bountiful crops and high beef and milk producing pastures.

Publicized by state extension services and other agricultural agencies, Basic Slag has come into wide use as a convenient, economical soil builder. The prescription, "Basic Slag and legumes," has restored many a depleted acre to high fertility . . . put many a southern farm "back on its feet." Together with the other soil-building programs of the agricultural

agencies, it has helped the southern farmer to prosper . . . and it has helped him to meet successfully the staggering demands for food made on him by a nation at war.

U-S-S Steel Products manufactured in our mills include:

- Rolled, forged and drawn steel products.
- Structural shapes, plates, bars, small shapes, agricultural shapes, tool steel, strip, hoops, cotton ties.
- Black, galvanized and special finish sheets.
- Wire and wire products.
- Reinforcing bars.
- Rails, track accessories, axles and forgings.
- Culverts, Panelbilt prefabricated steel buildings, cold-formed steel sections.
- U-S-S High Strength Steels and U-S-S Abrasion-Resisting Steels.
- Semi-finished products, pig iron and ferro-manganese.



TENNESSEE COAL, IRON & RAILROAD COMPANY

Birmingham, Alabama

United States Steel Export Company, New York

UNITED STATES STEEL

OR DECEMBER NINETEEN FORTY-FOUR

57

New Adams Distributors

The J. D. Adams Co., Indianapolis, Ind., manufacturers of road building and maintenance machinery, announce appointment of four new distributors in southern states. Florida will be served by Florida Equipment Co., Tampa; Maryland, by Phillips Machinery & Tractor Co., Alexandria, Va.; Virginia, by Rish Equipment Co. at Richmond and Roanoke, while the same firm will service West Virginia from Charleston and Clarksburg. These new distributors will handle sales and service of the company's entire line, which includes motor graders, leveling wheel graders, elevating graders, hauling scrapers, tamping rollers, road maintainers, etc.

New I. H. C. Truck Branches

As a step in its post-war planning, and also because of increasing activity in the truck field, International Harvester Co. has recently set up separate motor truck branches at Atlanta, Ga., C. S. DeWeese, manager; Kansas City, Mo., Buford Mullin, manager, and Louisville, Ky., under the management of E. M. Ford.

Swanson To Direct Purchasing For Clark Tractor

James Swanson has been appointed assistant purchasing agent and will have charge of all buying activities for Clark Tractor Division of Clark Equipment Co. at Battle Creek, Mich. Mr. Swanson succeeds the late D. E. Leach.

New Detroit Quarters for Kennametal

Kennametal, Inc., of Latrobe, Pa., manufacturers of cutting tools, have announced the removal of their Detroit branch to larger offices at 5531 Woodward Ave. to facilitate distribution and servicing of their products throughout the Detroit and eastern Michigan area by an augmented staff of tool engineers. An adequate stock of standard Kennametal tools and blanks will be maintained to provide immediate delivery of urgently needed items.

Place Seen in Post-War Picture for Steam Locomotives

The steam locomotive, streamlined and perfected to meet postwar requirements, is here to stay, according to Ralph P. Johnson, chief engineer of The Baldwin Locomotive Works, who discussed "Postwar Locomotives" before the Southern and Southwestern Railway Club, which met recently in Atlanta.

"Those who paint with scorn to steam locomotives as being 'obsolete' and 'backward' and believe the iron horse will give way entirely to other forms of motive power need only to observe the tremendous advances in steam power since Pearl Harbor to be convinced of the brilliant future for steam locomotives," Johnson pointed out.

"One highly-advanced type of steam locomotive which has definitely proven itself in regular service is the Baldwin-designed four-cylinder type as exemplified by the Pennsylvania Railroad's streamlined "T-1" class, two of which have been in continuous passenger service between Chicago and Harrisburg for two years. This locomotive, built by Baldwin, is capable of 100-mile-an-hour speed with a load of 850 tons, thereby avoiding the use of two engines on heavy passenger trains," Johnson said.

Brown Recalled to Fill Pittsburgh Chairman Post

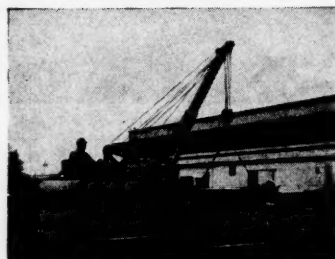
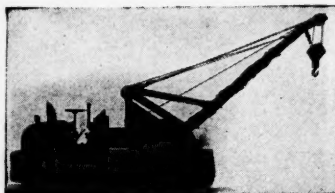
Clarence M. Brown, Philadelphia attorney, has been recalled as chairman of the Pittsburgh Plate Glass Company to fill the post left vacant August 13 by the sudden death of H. S. Wherrett. Leland Hazard, general counsel, was elected vice president; H. B. Higgins, president, was named chairman of the executive committee, and H. B. Brown, secretary, was elected to the Board.

President Higgins, in announcing the elections, reported the company is expecting little difficulty in reconverting to peacetime work after the war ends. In addition to enlarging the output of many old line products, he said his concern will add several new ones which have been developed during the search for materials to replace those cut off by the war.

New Link-Belt Speeder Cargo Crane Will Have Post War Uses

Link-Belt Speeder Corp., of Chicago and Cedar Rapids, recently announced a new, general-purpose cargo crane. The 10-ton capacity machine is not actually new, however. It was developed at the beginning of the war as the result of discussions with the Transportation Corps of the U. S. Army. A definite need for a crane to handle loading and unloading at Army embarkation docks led to discussions between Link-Belt Speeder technicians and Army engineers. The model YC-9 was the result. Since its practical development the new crane has been used on many war fronts for the loading, unloading and handling of the vast supplies necessary for the Army.

The model YC-9 cargo crane features a wheel base 10 feet 9 and one-quarter inches, the overall width is 7 feet 6 inches, and the overall length is 13 feet 6 inches. It is wheel-mounted on solid or pneumatic rubber tires with all controls and steering hydraulically operated. This low-slung unit gives ground-



hugging stability. Upper machinery is mounted on a 44-inch cast steel turntable equipped with hook rollers and oversize center pin which permits full circle operation. Position of the operator gives a clear view of work at all angles. Telescopic boom extends from 14 feet to 20 feet, and is raised and lowered by an independent, self-contained, worm boom hoist. Two independent drums permit operation as a single line clamshell or two line buckets. Steering is accomplished by dual-wheels operating on a pivoted axle.

The entire unit is operated by a three-speed transmission from a 57 H.P. gas engine, for traveling, swinging, hoisting and boom hoist. There are three traveling speeds forward and one reverse, with a low speed of 1.9 mph and a high speed of 6.75 mph.

Multi-Use Oil-hydraulic Press

To those seeking a new and economical means of speeding up operations requiring anywhere from 300 to 8,000 pound pressures in single, or repeated up and down strokes, the announcement of a new bench machine, just introduced by The Denison Engineering Co., of Columbus, Ohio, will be of special interest.

Called Multipress because it is basically an oil hydraulic press of many uses, it will deliver up to 4 tons downstroke pressure and up to 5,000 pounds "pull up" pressure even though completely self contained in a streamlined housing measuring only 16 inches by 26 inches by 34 inches, and weighs only 745 lbs. In addition, say the manufacturers, it has been especially designed to utilize a wide variety of accessories and fixtures with which it can perform innumerable production operations, such as pelleting, honing, broaching, peening, assembling, burnishing and straightening, etc. In fact, the manufacturer suggests 25 or 30 already known applications and claims that other uses are being learned of daily.

Mueller Joins Blaw-Knox

Paul M. Mueller, widely known as a mechanical engineer, has joined the Blaw-Knox Co., of Pittsburgh, manufacturers of industrial machinery, as chief engineer in charge of development, according to an announcement made by Chester H. Lehman, executive vice president.

New Skid Platform

The Union Metal Manufacturing Co., Canton, Ohio, is manufacturing a new type of materials handling unit. This new unit is a skid platform (illustrated) with interlocking channels and a vertical end frame. The purpose is to handle shingles, asphalt siding, porcelain ware, and other types of fragile materials; also, metal parts having machined or polished surfaces that cannot be stacked directly on top of one another without danger of damage.

A channel is welded to the lip of the skid at one end with the legs of the channel facing downward. This engages a "Z" bar. The other end of the skid platform has a channel welded under the lip of the skid with the channel inverted so that the legs stick up. This end of the skid platform also has a vertical end frame.

New Gap Style Motorized Press

All steel construction throughout and hydraulic control is the outstanding feature of the new motorized 10 and 20-ton presses, say Reimuller Brothers Co., the manufacturers, 9400 Belmont Ave., Franklin Park, Ill.

The Hy-Speed motorized press was created because of the demand for a popularly priced unit that could be used for production line work of marking, forming, notching, pressing, broaching, assembling, and other operations. The presses are made in two models of 10 and 20 ton with 10% extra tonnage available.

A hand lever hydraulic valve controls the ram movement through feed, hold or return position. Other features pertaining to the press are: hollow large area ram for holding punches and other fixtures, lapped ram, packless design, twin pressure gauges showing pressure and tons. Stroke of ram is 12 inches.

Choate Industrial Manager For M-H In Atlanta

Dave W. Choate has been named Atlanta, Ga., industrial manager for Minneapolis-Honeywell Regulator Co. and its precision industrial instrument division, the Brown Instrument Co. Mr. Choate started with the Brown company in 1936 and has been in charge of the Milwaukee branch of that company's activities.

Johnson and Scott Represent Allen Billmyre Co.

Allen Billmyre Co., of Mamaroneck, N. Y., announces the appointment of Johnson & Scott, 918 Dermon Building, Memphis 3, Tenn., as their representatives for Tennessee. This concern will handle the sales of Billmyre turbo blowers and exhausters, Potstown rotary blowers and exhausters, Exidust industrial vacuum cleaning systems and portable vacuum cleaners, and the other Allen Billmyre products in the Volunteer State.

Martin of S-W Passes

George A. Martin, paint and chemical pioneer, well-known mid-west industrialist, and Board Chairman of the Sherwin-Williams Co., world's largest paint manufacturer, died at his home in Cleveland, Ohio, October 31. He would have been 50 years old on November 7th.

A leader in the paint and color industries for the past 50 years, after he left school at 12 to work in the Chicago stockyards, Mr. Martin was perhaps best known for his success in putting paint into ready-mixed packages to make it easily usable by the layman. After World War I when the blockade of German dyes and colors left the paint industry stranded, Martin crusaded to make the U. S. paint and chemical industry independent of foreign sources of colors and dyestuffs, to the extent that the companies which he headed owned their own pigment mines and smelters, oil mills and color works, and even tin can plants.

SHORT-CUT TO THE GULF

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JOPLIN

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Look here... now... for postwar opportunities!



VITAL LINK IN THE ALL-AMERICAN CHAIN

Business Firm Turnover

(Continued from page 39)

Many of these business births may be attributed directly to the war, which, like all other social and economic changes, creates as well as destroys opportunities for new enterprise. Aside from opportunities implicit in the production program as such, the war has undoubtedly created thousands of new opportunities as a result of the migration of people and of changes in their mode of life.

The number of new, discontinued, and transferred businesses in various lines becomes more meaningful when related to the total number of firms operating within these specific fields. The lowest birth and death rates were found in retail trade and the highest in contract construction. That the turn-over rates for retail businesses are lower than those for all industries combined is contrary to general opinion. This conclusion is confirmed, however, by the substantial agreement of data derived independently from many State Employment Security agencies and from the Bureau of Old-Age and Survivors Insurance.

The extremely high rate in construction is due partly to the inclusion of concerns organized temporarily to carry on specific construction projects. In manufacturing and mining, discontinuance rates were similar to the average for all industries combined. That the rates were as high, in a field usually regarded as relatively stable, is due to the inclusion in the manufacturing group of thousands of small shops and processors having few or even no employees. Included, for example, are small sawmills, printing establishments, cheese factories, custom industries, etc.

The high turn-over rates in the transportation - communication - public utilities group are also, at first glance, somewhat surprising. The explanation lies in the fact that this group includes numerous small truckers, bus operators, and taxicab companies for which rates of turn-over are relatively high.

A very large part of the business turn-over during the war period has involved the smallest firms. This is not surprising in view of the fact that the rates of entry, exist, and transfer normally vary inversely

with size of concern. During the years 1942-43, concerns with fewer than 4 employees (comprising about 82 percent of all firms) provided 95 percent of all discontinuances, 91 percent of all new businesses, and 90 percent of all transfers.

The large and continuous flow of enterprises into and out of the business world, therefore, consists very largely of small concerns. There are grounds for belief, however, that the large discontinuance rates for small firms are due to the closings of relatively new enterprises, most of which are small. It is entirely possible — though not completely demonstrated — that long-established small businesses may have nearly as low discontinuance rates as their larger competitors.

These figures explain to some extent the apparent paradox of large decreases in the number of firms associated with a stable or even increased dollar volume of business. The decline in number of concerns occurred principally among the smaller businesses whose total volume of business (in comparison with their numbers) was small. The remaining concerns, by increasing sales or output, were able to offset the withdrawal of firms.

In the 9 years immediately preceding the war, the rate of growth in number of business enterprises was greater than in any period since 1900, and at the outbreak of the war the number of firms per capita was probably at an all-time high. This suggests, at least in terms of numbers, that the opportunities for individual enterprise had not declined perceptibly during the years preceding the war—except during the great depression — and that the entrepreneurial class was at least as numerous in 1941, relatively, as in 1900, 1920, or 1929.

This is a very significant conclusion from the point of view of praising the post-war future of individual enterprise. In interpreting this conclusion, the fact must be considered that the relative number of independent farmers has decreased during the same period the number of independent professional men increased.

The history of American business reveals a steady shifting in the relative number of firms in various lines

of business. In many lines, the number of firms has declined either because of increasing concentration of production in large firms or because of reduction in demand. In other lines, the numbers have increased in mushroom fashion, and totally new kinds of business, almost unknown a few decades ago, have emerged. Indeed, had it not been for the rapid development of "small business" industries (e.g., eating and drinking establishments, filling stations, radio repair shops, beauty shops, etc.) considerable concentration might have occurred.

The war may have speeded up

(Continued on page 62)

STEAM ENGINE GENERATOR SETS FOR SALE

1—Harrisburg Foundry & Machine Works
20" x 16" horizontal single cylinder side
crank automatic steam engine—#4955
—single eccentric—slide valve—72" x
16" flywheel 15" cast sub-base—out-
board stand and bearing for generator
including field rheostat for generator.

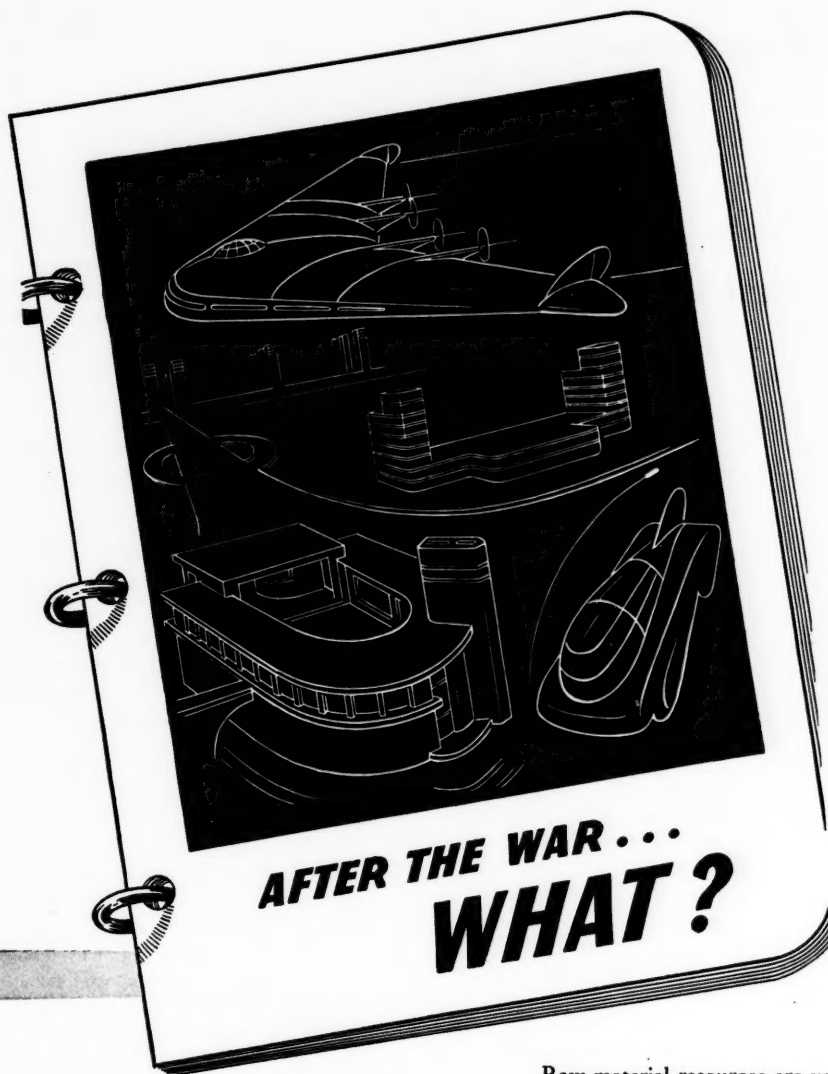
1—General Electric Co. 125 k.w. D/C generator—#1198954 — type MPC-6-125-250 form LD—1000 amp. 120/125 V 250 R/P/M—direct connected to steam engine — including wiring and panel board.

1—Murray Iron Works 16" x 36" horizontal single cylinder side crank Corliss valve steam engine—#3083—heavy rolling mill frame — double eccentric — drop cut-off—fly-ball governor—12" dia. x 14" flywheel—outboard stand and bearing for generator—gravity and force feed oiling—including field rheostat for generator and pipe guard.

1—Westinghouse 200 k.w. D/C generator —#613407 — 125 V 100 R/P/M — direct connected to steam engine—including wiring and panel board.

Price furnished upon request. Will sell all or part of above equipment. Can be seen in operating condition.

WRITE H. H. OGDEN
ATLANTA PAPER CO.
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AFTER THE WAR... **WHAT?**

WHEN the final blow of this war has been struck and Victory won, American Industry will turn to the manufacture of amazing new Homes, Planes, Automobiles, Radio and Television sets, Refrigerators, Washing Machines and thousands of other peacetime marvels which to Americans are not luxuries but necessities of everyday life.

When that BETTER DAY comes, industrialists will find in North Carolina those factors which make for the most efficient and profitable operation. North Carolina offers special advantages to those interested in mineral, chemical, plastic, woodworking and plywood, textiles, food processing and ceramic fields.

Here, workers are 99% native-born . . . willing, efficient, intelligent, cooperative. The supply is ample.

Raw material resources are vast. Hydro-electric power is plentiful.

North Carolina's strategic location—outside the congested areas, yet close to major centers—affords economical production plus efficient distribution. Production costs are further reduced by the year-round mild climate. Living conditions are ideal: Healthful climate . . . abundant outdoor recreational facilities.

North Carolina is in sound financial position. The tax structure appeals to all types of business men. North Carolina invites postwar industrial planners to write today for specific information, engineered to your field. Address, Commerce and Industry Division, 3302 Department of Conservation and Development, Raleigh, North Carolina.

NORTH CAROLINA

A Friendly Suggestion

Repair and replacement cost is steadily rising.

Fire losses have reached the highest peak in years.

We strongly recommend that you review your present insurance status with your local agent who will gladly make a survey of your needs and submit his recommendations.

THESE RESOURCES PROTECT OUR POLICYHOLDERS

120th ANNUAL STATEMENT
as of December 31, 1943

Assets		Liabilities	
Cash in Banks and Trust Companies	\$ 8,378,392.71	Reserve for Unearned Premiums	\$12,789,787.34
United States Government Bonds	13,063,315.29	Reserve for Losses and Loss Expenses	4,339,270.00
Other Bonds and Stocks	17,935,781.27	Reserve for Taxes and Expenses	879,900.00
Mortgage Loans on Real Estate (Less Reserves)	142,179.33	Other Reserves	987,063.31
Real Estate	32,657.75	Capital	\$ 2,000,000.00
Premium Balances Receivable (Not over three months due)	2,063,682.55	Net Surplus	21,238,385.02
Bills Receivable, Not Due	307,850.03	Surplus to Policyholders	23,238,385.02
Interest Accrued	61,524.01		\$42,234,405.67
Other Assets	249,022.73		
Total Admitted Assets	\$42,234,405.67		

Securities carried at \$3,415,000.15 in the above statement are deposited as required by law.

On the basis of December 31, 1943 Market Quotations for all Bonds and Stocks owned, the total admitted assets and surplus would be increased by \$1,054,379.07.



Business Firm Turnover

(Continued from page 60)

trends favoring larger firms in certain industries, but, on the other hand, the war has probably also been accompanied by the development of new opportunities for small business. In the past, small business has held its position, not by maintaining its status within each kind of business, but rather by ceaselessly developing opportunities in new fields. There seems to be no valid reason for assuming that this process has been brought to an end by the present war.

Multiple Industrial Tenancy

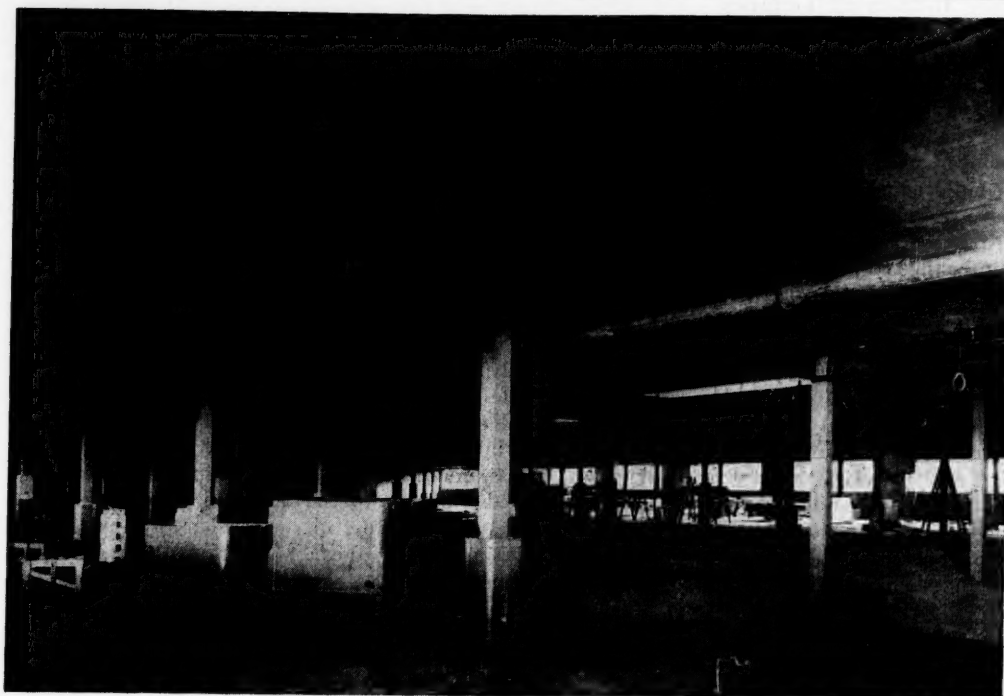
(Continued from page 41)

economic debacle which threatened when the main industry of an industrial community has shut down or moved out; the buildings and fixed property being taken over by a local group of merchants, bankers and real estate men who saw their businesses threatened with ruin upon withdrawal of the community's principal payroll.

Amoskeag Industries, Inc., Manchester, New Hampshire, is an outstanding example of a defensively organized venture. Amoskeag Mills, one of the largest cotton textile enterprises in the country, was the nucleus about which the city of Manchester grew up. At their peak the mills employed 13,000 of the city's 26,000 employed people. The drift of the textile industry away from New England and desire of management to decentralize caused the Amoskeag Corporation to decide on abandoning its Manchester operations. The city was threatened with the loss of approximately 50 per cent of its total payrolls. Local enterprise took over the property, sold the power plant and some of the buildings, encouraged the establishment or entry of new industries, and in this manner restored to the town a substantial portion of its former industrial activity, at the same time saving the other businesses of Manchester from ruin.

To the business seeking industrial space, a location in a Multiple Industrial Tenancy building offers the advantages of flexibility in area occupied, and complete freedom from the problems that go with the ownership and management of indus-

(Continued on page 64)



This is the popular new type of Flat Slab construction for industrial buildings. Compare the advantages of the ALL FLAT ceiling with others and send for our catalogue.

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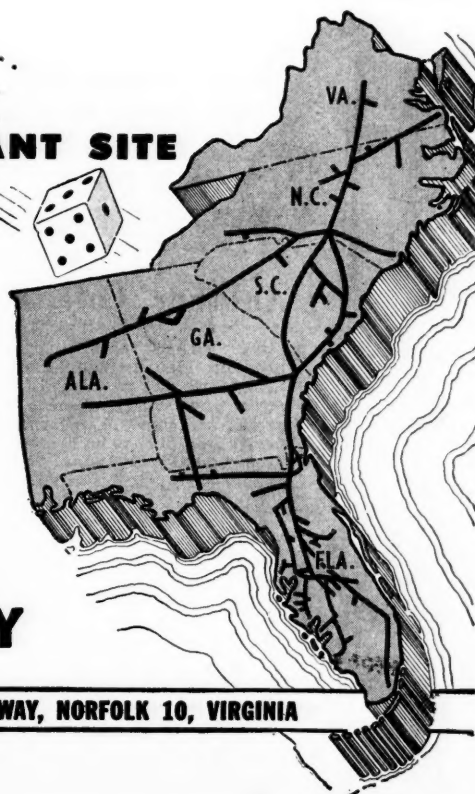
Let us apply the facts and figures gained through years of experience to help you select the location where you can operate with the greatest economy.

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SEABOARD RAILWAY

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DALLAS T. DAILY, GENERAL INDUSTRIAL AGENT, SEABOARD RAILWAY, NORFOLK 10, VIRGINIA



Multiple Industrial Tenancy

(Continued from page 62)

trial property such as maintenance, realty taxes, public liability, and the need for compliance with local ordinances. The tenant simply leases the amount of space it needs, agrees with the building management upon such matters as partitions, receipt and delivery of materials, carloading, maintenance responsibility and utilities services. He then moves in and pays for exactly the space and services his venture requires. If the business expands, more space is available without an expensive move. Should seasonal or market considerations require storage of an extensive raw materials supply or the building of a large finished products inventory, additional warehouse space is rented as needed right in the same building. If the business contracts, arrangements are made as may be appropriate for reduction in the space occupied. At no time is there a heavy investment of capital in real estate.

One multiple tenancy property in the East has among its tenants representatives of over ninety differ-

ent industries. Perhaps the only industries which could not be well housed in such a property would be those of heavy lumber, coal, petroleum and a few chemical projects. Management would have to know something of a prospective tenant's proposed operation that account might be given to compatibility with neighbors of other types. A manufacturer producing sulphur compounds would make a bad neighbor for a packer of dairy products which readily absorb odors or flavors. Careful management and placement of tenants will obviate such difficulties however, as evidenced by the fact that in one multiple industrial tenancy project, manufacture of pancake flour and cake mix, powdered dehydrated eggs, animal glue, oil burners and printing ink are all carried on in the same building.

Much of this article has dealt with plants of very large size, and although the ordinary concept of this type of project assumes a plant large enough to support a competent, full-time and fully organized management, the same principles can be applied equally well to the smaller

plant. It would be feasible, for example, for a local real estate company to take over a plant of only 20,000 or 25,000 square feet and divide it into suitable units for perhaps only 3 or 4 moderate size concerns, or 25 or 30 very small enterprises. In a case like this the management would be a part-time function of the realtor's regular staff.

At the other extreme, there are plants with 1 million to 5 million square feet of floor space which would make for management operational problems of sufficient magnitude to justify the full attention of a highly integrated management corporation.

Multiple industrial tenancy offers a means of putting into productive operation any plant for which there is not available a buyer who can make adequate use of the entire property.

Bankers, Investors, Chambers of Commerce and others interested in securing a war plant for private tenancy are invited to communicate with

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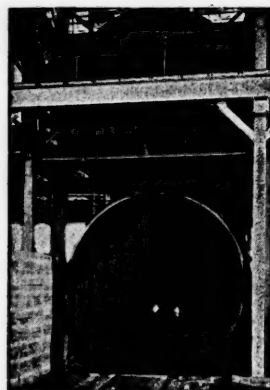
Tanks and Towers	Nickel-clad and Stainless Steel Vessels
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This applies to field as well as shop built equipment

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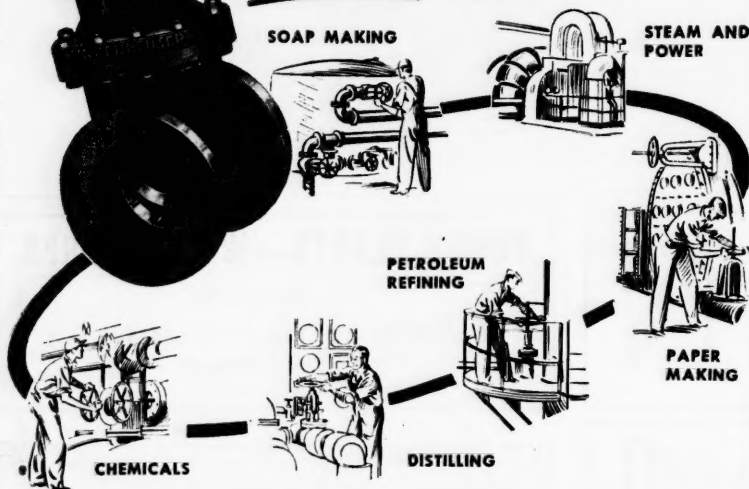
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WARTIME SERVICE HAS BEEN ***TOUGH*** ON VALVES



but not too tough for
LUNKENHEIMER
Built-in quality



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Simplicity of design and engineering "know how" are responsible for the exceptional record established by Lunkenheim Valves on every wartime front—industrial and military.

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BOILER MOUNTINGS, LUBRICATING DEVICES, AIRCRAFT FITTINGS

Southern Industrial Expansion—November (Continued from page 51)

PORT LAVACA—plant—City plans addition to quick-freeze plant.

RAYMONDVILLE—remodeling—Bob Allen Vegetable Co., remodel packing plant.

ROSEBUD—frozen food lockers—T. C. Kirksey plans frozen food locker plant.

SAN ANTONIO—factory—Randolph Martin plans factory.

SAN ANTONIO—factory—Slats-O-Wood Fabricating Co., Houston, plans factory.

SAN ANTONIO—warehouse—Ben Mines plans new industrial and mercantile warehouse at cost of \$100,000.

SAN ANTONIO—warehouse—A. P. Rheiner & Son, San Antonio, has contract for warehouse; Central Forwarding, Inc., owner.

SAN BENITO—addition—Porter & Wentz, Inc., Brownsville, plans packing plant addition.

SAN JUAN—remodeling—Boehnke Shippers Equipment Co., Harlingen, plans remodeling factory.

STAMFORD—electric lines—Stovall Construction Co., Sherman, has contract at \$31,800 for 53 miles rural electric lines; Stamford Electric Co-operative, owners.

WACO—furnace—Owens Illinois Glass Co. plans smelting furnace; \$557,308.

VIRGINIA

BRIDGEWATER—plant—Celanese Corp. of America has taken an option on 18-acre plant site, near Bridgewater, for large warp knitting plant.

CHARLOTTESVILLE—laboratory—Institute of Textile Technology, Ward Dulaney, Director, acquired "Boxwood," 15-acre estate as permanent site for research work in field of textile science.

NORFOLK—cold storage—Old Dominion Fish Co. plans cold storage warehouse.

SALEM—plant—Jeffreys Laboratories, Inc., has building under way for processing biological products.

WEST VIRGINIA

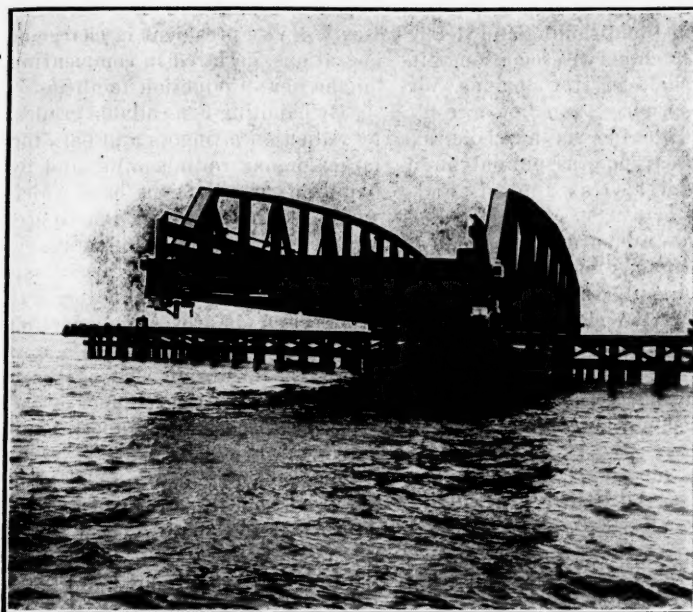
Plant—Goodyear Tire & Rubber Co., Akron, Ohio, authorized by Regional War Production Board at Cleveland, Ohio, to construct new facilities for production of vinyl chloride copolymers at Natrium, Marshall County; total cost \$1,500,000.

WILLIAMSON—bakery—L. D. Feuchtenberger plans bakery.

Air Conditioning Industry

(Continued from page 46)

Price still is a big factor in commercial air-cooling. Since a large proportion of stores and other establishments which are prime prospects for air-conditioning are in leased space, the proprietors are not anxious to make large investments in installation materials and labor that cannot be salvaged when it becomes necessary to move. Recognizing this factor, manufacturers are designing self-contained units of relatively large capacity which require a minimum of installation construction. The unit may be moved with no more difficulty than other store fixtures, and such little ductwork as may be required to adapt the unit to the space will not represent any undue expense. The cabinets usually are attractively finished.
(Continued on page 68)



ELECTRIC ARC WELDED

Swing Span Bridge
for State Road Department
of Florida
at Fort Pierce.

BETTER CONSTRUCTION AT LOWER COST

THE AETNA
Steel Construction Co.
Jacksonville, Fla.

CONVERSE BRIDGE & STEEL CO.

Chattanooga, Tennessee

Structural Steel for all Industrial Structures,
Buildings and Bridges

LARGE STOCK FOR IMMEDIATE SHIPMENT

STRUCTURAL for BUILDINGS STEEL and BRIDGES

Capacity 1000 Tons per Month. 3000 Tons in Stock

Carolina Steel and Iron Company

The Largest Steel Fabricators in the Carolinas

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Limestone Sand

Four Plants Located on N. & W. and A. C. L. Railways
10,000 tons daily capacity

W. W. BOXLEY & COMPANY

711 Boxley Building, Roanoke 10, Va.

Air Conditioning Industry

(Continued from page 66)

ished and wholly enclose the operating mechanism. It is necessary only to run electrical leads and water lines to it, and a connection to the drain.

Air-conditioning is a fast-growing industry. It fills a real need, particularly in the South where the cooling season is of sufficient duration to more than justify its cost. From an economic standpoint a merchant in Boston might not be able to afford to make the investment for 60 days of use that a similar merchant in Savannah might make for 150 days of need. Both cities, and almost all others in the country, offer a real market for air-conditioning, and the industry is planning to make good equipment available to all parts of the country at the lowest prices consistent with good equipment and good installation.

Air Conditioning Industry Makes Rapid Strides Through War-Time Developments

Hot Springs, Virginia — Application in the war industries has advanced the science of air condition-

ing by many years, it was declared by the Air Conditioning and Refrigerating Machinery Association at its meeting held in Hot Springs, Virginia, November 2 and 3. As a result, air conditioning as a whole has gained great impetus, not only in industry but also as applied to the home.

For the intensive development of the tremendous market that is seen ahead, manufacturers interviewed at the ACRMA meeting stated that greatly-expanded advertising and promotion programs, both national and local, have been planned by individual manufacturers.

Rustless Addition Operating

(Continued from page 49)

Power for the operations is brought in at 13,000 volts, being stepped down to 2,200 volts by a bank of three 1,000-kva. transformers.

"Operation of this new Hammer Shop will speed up deliveries of our stainless steels to contractors for the armed services and will avoid delays formerly caused by having to send this work to out-of-town

hammer shops," G. D. Moomaw, Rustless vice president in charge of operations, declared in commenting on the new production facilities.

"By handling non-rollable grades, by reduction of ingots and bars too large for our rolling mills, and by handling miscellaneous bars which would require too much time to prepare the rolling mills for, our new hammer shop equipment gives Rustless more flexibility in handling war orders and improves delivery on many higher grades of steel."

Russell E. Moran, who has been in charge of Rustless hammer operations, has been named superintendent of the new shop.

Compressed air operates the hammers and a force of 57,000 pounds will be exerted on the piston of the large hammer, delivering a 200 foot-ton blow, with a 25,000 pound force and a 61 foot-ton blow on the smaller. The large hammer has a 94-ton anvil assembly and the smaller a 26-ton anvil.

A dual furnace of 252 square feet of hearth space has been installed to furnish hot ingots and billets for the 12,000 pound hammer, and an-

(Continued on page 70)

STENCIL ADDRESS YOUR SHIPMENTS

STENCIL MARKED SHIPMENTS WITH EASILY READ, PERMANENT STENCILED MARKINGS—roll faster and costly delays in transit are eliminated.

DIAGRAPH-BRADLEY MANUFACTURES STENCIL CUTTING MACHINES FOR EVERY SHIPPERS NEEDS.

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STENCIL MACHINES
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 See Classified Section-Telephone Book • Stencil Cutting Machines

HOW A FAMOUS MANUFACTURER PROTECTS ENGINES DURING THE

THREE MOST CRITICAL MINUTES OF THEIR LIVES

Engines made by Minneapolis-Moline Power Implement Company are doing some mighty essential work these days—such as powering the famous heavy-duty MM Jeeps and the many MM farm implements working to feed us and our Allies.

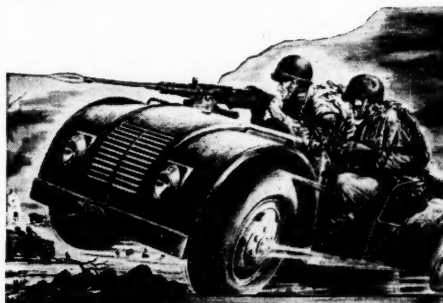
So every minute of an MM engine's years-long life is important. But most critical are the first three minutes of the initial run, for 70% of engine wear occurs during those minutes.

Now—enter Bowser Exact Liquid Control. Minneapolis-Moline protects its engines during the test run, including those three most dangerous minutes,

with a Bowser Oil Circulating System that serves all test blocks.

Periodic losses from scored pistons and bearings have been completely eliminated. There's an important saving in oil, too. Previously, from 7 to 9 quarts were used in testing each engine. Now the oil loss is only about 60 gallons for each 300 engines tested.

Maybe your liquid control problem is different, but somewhere in your plant is a job that can be done better by a Bowser Meter, Filter, Proportioner, Lubrication System, Oil Conditioner, Pump or one of the many other Bowser products. BOWSER, INC., Fort Wayne 2, Indiana.



BUY
WAR BONDS



Not only has Bowser's war production earned the Army-Navy E... Bowser equipment has helped earn it for scores of other companies.



The Name That
Means Exact Control
of Liquids

Gates—Intake, Sluiceway and Spillway

Hydraulic Turbines — Francis and

Propeller Types

Rack Rakes

Trash Racks

Valves—Pipe Line and Penstock

NEWPORT NEWS SHIPBUILDING
AND DRY DOCK COMPANY

NEWPORT NEWS, VIRGINIA



MOVE MATERIALS FOR WAR AND PEACE

IN *Fulton* WATERPROOF COTTON
AND BURLAP PAPER LINED BAGS

In these times bag production is war production. Our plants have supplied millions of sand bags as well as various other items for use in combat areas. Behind the lines, supplies of food and other material are transported thousands of miles in bags specially designed to protect contents against hazards of rough handling, moisture and insects. Back here at home bags must move a long list of essential commodities ranging from small machine parts, through dozens of items of food, feed and produce to the hygroscopic chemicals requiring special waterproof packages. Many Fulton Waterproof Paper Lined Bags are replacing containers made of critical materials—metal drums, wooden boxes and barrels.

The output of our plants will continue to be devoted to these essential requirements until Victory itself is "in the bag."

FULTON BAG & COTTON MILLS

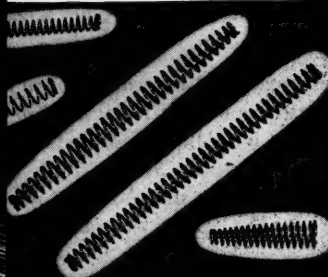
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JOHNSON XLO *Music Wire*



Among the thousand uses of Johnson XLO Music Wire—springs and wire forms in great variety. Quality product in full range of sizes from .003" to .200" dia.



JOHNSON STEEL & WIRE CO., INC.
WORCESTER 1, MASSACHUSETTS.
NEW YORK AKRON CHICAGO LOS ANGELES

Rustless Addition in Use

(Continued from page 68)

other with 191 square feet of hearth area has been provided for the 5,000 pound hammer. The furnaces are oil-fired and operate up to 2,500 degrees Fahrenheit.

The plant was built by Cummins Construction Co., Baltimore contracting firm. Richard H. Campbell, of the Rustless organization, supervised the project.

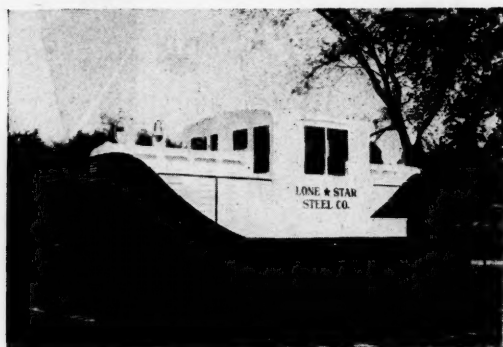
—- TRADE —- LITERATURE

WELDING BUSINESS

The James F. Lincoln Arc Welding Foundation, Cleveland 1, Ohio, has prepared a 100-page booklet, "Setting Up and Operating a Welding Business", that will be of assistance to the man who wishes to establish his commercially operated welding shop, or to the organization desiring to have a welding department for its own servicing and repair work.

ELECTRICAL SIGNALS HANDBOOK

Faraday Electric Corp., Adrian, Mich., has issued a new Catalog and Handbook of Electrical Signals, No. 61, that is an excellent guide to good signaling, enabling the buyer to select the proper signal. Profusely illustrated, the catalog contains helpful engineering data, diagrams and interesting facts about sound measurements.



One of our customers writes:

"The Whitcomb Diesel has proven to be eminently satisfactory, exceeding our highest expectations. This equipment hauls six charging cars up the steep grade from the charging pit, as compared to the maximum of three cars formerly handled by a steam locomotive at its prime. The Whitcomb low fuel consumption has been impressive."

POWER TO SPARE One of the Fundamentals

The others are sturdy construction, low-cost maintenance, and efficient and dependable operation. All unnecessary parts are eliminated and in the Whitcomb you have a simple, powerful unit that stands out as the most practical industrial locomotive found anywhere in the world.

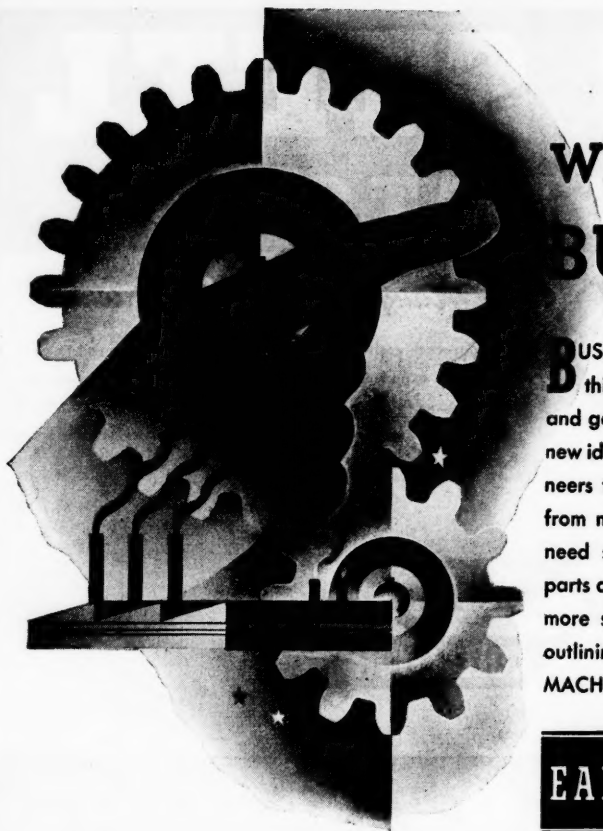


DIESEL, GASOLINE, MECHANICAL, OR ELECTRIC DRIVE — The Products of a Pioneer.



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Subsidiary of ROCHELLE, ILL.
THE BALDWIN LOCOMOTIVE WORKS



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BUSINESS will grow, we believe, out of America's discontent with things as they are. People will go on demanding improvement and get it. This may call for new lines of engineering endeavor—new ideas—as regards your products. Let us work out with your engineers the design, application and production of any type gear—from medium size up to 30 feet in diameter—on which you may need specialized advice. Earle Gears incorporated in the vital parts of the things you make, will give you substantial advantages—more saleable products—more satisfied customers. Write today, outlining your problems or requirements. THE EARLE GEAR & MACHINE CO., 4719 Stenton Ave., Philadelphia 44, Pennsylvania.



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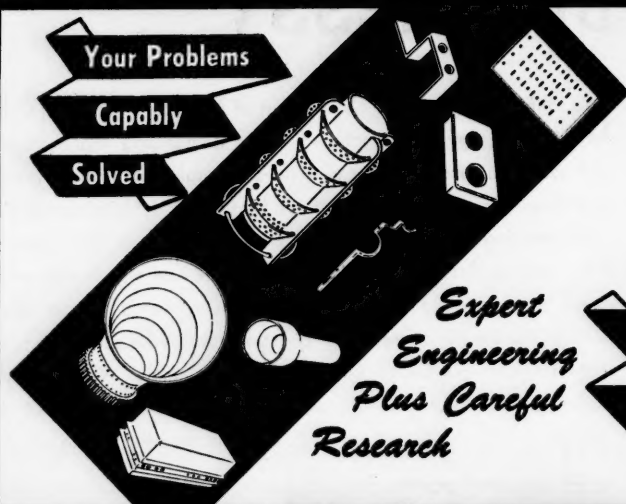
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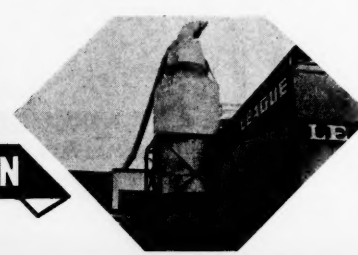
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—HOT DIP JOB GALVANIZER—

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Branch Office:
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BARGER MILLWORK COMPANY
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3000 Rooms in the South

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CARLING DINKLER, President

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While cosmopolitan in its general appeal, and modern up to this moment in its equipment, there is a peculiar flavor of The Old South here which Southerners are quick to note and appreciate. They feel at home and come back to us again and again.

Rates \$3.00 per day and up. Every room with bath or shower.
Centrally located.

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Wheel, Load 12", Caster 6"
Platform 36 x 60
RUBBER WHEELS

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Semi Steel
Wheels
\$22.50

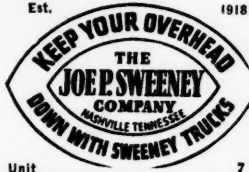


No. 2162

Est.

1918

No bar
to injure
heel of
operator



Unit

7

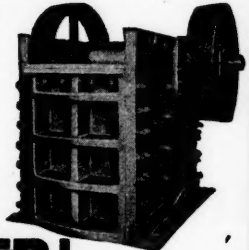
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150 to 200 tons Per
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Shovel Rock to 5'
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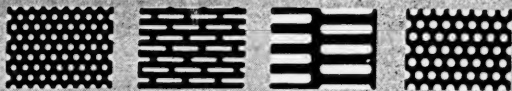
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Jaw Crushers

SCREENS

of Perforated Metal

ANY METAL • ANY PERFORATION



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PERFORATED METALS

For every purpose, Industrial and Ornamental

Steel, Stainless Steel, Monel Metal, Brass,
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Plate and all other metals or materials
perforated as required, and for all kinds
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SCREWS for every need

You can depend on us for
QUALITY • EFFICIENCY • SERVICE

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in all commercially rolled metals,
all standard and special designs.

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Metal Perforating is your assurance of
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and shipped promptly.

Metal Sample Plate on Request.
ERDL PERFORATING COMPANY,
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McLANAHAN EQUIPMENT ROCK-SAND- GRAVEL

Single and double roll and jaw crushers,
hammer mills, super dry pans, steel log
washers and scrubbers, sand drags, re-
volving and vibrating screens, elevators,
conveyors, dryers, lifts, hoists. Complete
portable, semi-portable and stationary
crushing, screening
and washing
plants for differ-
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any materials.

McLanahan & Stone
Corporation
Established 1835
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TRADE LITERATURE

ARMCO COLD ROLLED PAINTGRIPS

Design and fabricating advantages of a special surface-treated sheet steel that takes and preserves paint are presented in a booklet published by the American Rolling Mill Co., Middletown, Ohio. Armco Cold Rolled Paintgrip is described as essentially a steel sheet that is given an electrolytic zinc flash and then Bonderized at the mill. Advantages of the sheet are listed. A copy of the booklet "Armco Cold Rolled Paintgrip, Where and How to Use It" may be obtained by writing the American Rolling Mill Co., Middletown, Ohio.

GRINDING WHEELS BOOK

To acquaint grinding wheel users with the newly announced standard markings for identifying grinding wheels and other bonded abrasives, Carborundum Co. has prepared a 136-page reference book on grinding—including a complete explanation of the new marking symbols; a comprehensive schedule of grading recommendations for general, tool-room, diamond wheel, and thread grinding; a description of each common type of grinding; safety rules; and a table of useful speeds. For a free copy write to Carborundum Co., Niagara Falls, N. Y.

CLARK PRODUCTS

An idea of the character and variety of Clark Products can be had from a vest-pocket booklet announced by Clark Equipment Co., Buchanan, Mich. Its 32 pages, in colors, carry illustrations and brief descriptions of Clark Celfor drills and reamers, electric steel castings, metal spoke wheels, front and rear

axes for trucks and buses, transmissions, gears and forgings, fork trucks and industrial tractors, railway car trucks, blind rivets, trailer axle, and the newly developed Booster Engine for 1½-ton trucks.

DIRECT-FIRED WARM AIR HEATING

Dravo Corporation has prepared a booklet entitled, "Portfolio of Outstanding Engineering in Industrial Heating," describing the Direct-Fired warm air method of heating. The booklet illustrates many of the great war plants which are heated by this method. These structures include, among others, the 35-acres bomber modification center at Birmingham, Ala., numerous ordnance depots, tank arsenals, naval warehouses, and the corrugated sheet steel Quonset huts used by the U. S. Armed Forces at advance bases.

These are only a small part of the thousands of successful installations of Dravo Direct-Fired Heating, one of the outstanding of which is the Ford Hangar at Willow Run. This heating method is adaptable to the aeronautical, industrial, and automotive fields in peace time, say the makers. The building boom that will follow this war will include many types of structures containing large, unobstructed areas that can best be heated by this new, efficient method.

A copy of this portfolio is yours upon request. Write for Bulletin 512, Dravo Corporation, Dravo Building, 300 Penn Ave., Pittsburgh, Pa.

ARC WELDING ELECTRODES

A new bulletin on arc welding electrodes has been released by Allis-Chalmers Manufacturing Co. The bulletin gives a complete description of each electrode in the Allis-Chalmers line, and includes separate charts on physical properties of weld metal for each electrode as well as on recommended current values. The electrodes, making up a new Allis-Chalmers line, are both a-c and d-c types and are easily identified by official AWS classification numbers. The bulletin, L6348, may be obtained by request from Allis-Chalmers Manufacturing Co., Milwaukee 1, Wisc.

AIR TRAVEL GUIDE

"Welcome to Southern Skies" is the title of a 20-page booklet in four colors just issued by Delta Air Lines of Atlanta, Ga., for distribution on its airliners and for direct mail. Designed to be of service to wartime air travelers, especially those flying for the first time, the booklet is institutional in its theme, tracing the 20-year history of the company, picturing the territory it serves, describing its war work, and briefly outlining Delta's post-war plans. A pocket inside the front cover will carry route strip maps, post-cards, luggage stickers and miscellaneous material which will be changed from time to time.



GARY WELDED GRATING

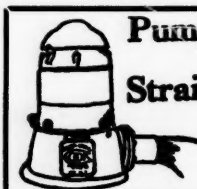
Square edge bars for safe footing.
Hexagonal cross bars for neat appearance.

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Send for attractive paper-weight sample, which is yours for the asking.
Catalogues upon request.

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PICTURES OF INDUSTRIAL PLANTS
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STRUCTURAL STEEL
For Buildings, Bridges and All Industrial Purposes
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A. K. ROBINS & CO. INC. BALTIMORE, MD.
WRITE FOR CATALOGUE

They're Going Overboard For Victory—Are YOU?



USE 8-POINT PLAN FOR AN OVERBOARD DRIVE IN THE 6th WAR LOAN!

NOV. 20th TO DEC. 16th

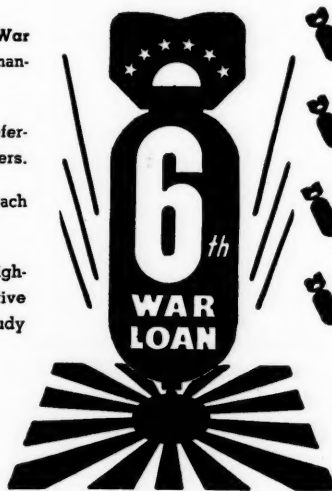
Our fighting men still have a long way to go! But—your plant-wide selling of the 6th can do much to shorten their embattled miles—lessen the price they so willingly pay for victory! Join the coast to coast parade of patriotic firms that are assuring an "overboard" showing in the 6th by following through on every point in the 8-Point Plan.

Start the ball rolling by appointing a 6th War Loan Bond Committee, representing labor, management and other groups.

Carry on by selecting a Team Captain—preferably a returned veteran—for every 10 workers.

Right at the start, establish a Quota for each department—and every employee.

Arrange frequent Meetings of Captains, highlighting importance of their work—effective sales methods—and need for painstaking study of Treasury Booklet, Getting The Order.



Make definite Assignments to those best equipped to arrange music, speeches, rallies, competitive progress boards and meeting schedules.

Issue Individual Pledge Cards—made out in the name of each worker and providing for both cash and installment purchase.

Resolicit! This is the secret of "overboard" War Bond subscriptions. Your State Payroll Chairman has a special Resolicitation Plan for you to put into action near the end of the campaign.

Give generously of your Advertising Space to drive home the War Bond story.

The Treasury Department acknowledges with appreciation the publication of this message by

MANUFACTURERS RECORD

★ This is an official U. S. Treasury advertisement—prepared under auspices of Treasury Department and War Advertising Council ★

DECEMBER NINETEEN FORTY-FOUR

75

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**Machine Tools
Power Plant Equipment**

When you need re-
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Everything from a Pulley to a Powerhouse

THE O'BRIEN MACHINERY CO.
PHILADELPHIA'S LARGEST REBUILT MACHINERY AND EQUIPMENT

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METAL WORKING MCHRY.
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Modern AIR COMPRESSORS

ALL TYPES AND SIZES

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Guaranteed

EARL E. KNOX COMPANY
12 WEST 2ND ST. ERIE, PA.

AIR COMPRESSORS

New and remanufactured
All makes and sizes
Write for Bulletins 1000 and 1042
AMERICAN AIR COMPRESSOR CORP.
Dell Ave. & 48th St. North Bergen, N. J.

POWER PLANT

3-200 H.P. Brady Scotch Type, Horizontal, Self Contained, A.S.M.E. Code, 125 lb. Boilers, arranged for coal firing, complete with regular steam trimmings, steel flue, Cochran Open Type Heater, Boiler Feed Pumps, CO2 Recording Equipment, Damper Regulator and complete Schutte Koerting Oil Fuel System, disconnected.

Boilers may be purchased separately.

ALL IN FINE CONDITION

Ready for prompt shipment.

DELTA EQUIPMENT CO.

148 N. 3rd St. Phila. 6, Pa.

FOR SALE

Power plant equipment. Steam, Diesel, electrical, boilers, engines, turbines, generators new or used.

PENN MACHINERY COMPANY
Jackson, Mississippi

WANTED IMMEDIATELY!

One York 364-W Freon Water-Cooled Condensing Unit or equivalent 25 or 30 horsepower.

P. O. Box 428, Phoenixville, Pennsylvania

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We are the Largest Dealers in Wood-Working Machinery in the World. We Sell, Buy and Trade.

Our rebuilding is unequalled.

— Write Us —

J. LEE HACKETT COMPANY
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WANTED

Regardless of age—or condition

**ONE FLEMING HARRISBURG
ENGINE-GENERATOR
DIRECT CONNECTED UNIT**

300 to 350 H.P. Steam Engine with 200 KVA Generator—60 Cycle—3 phase. Give best cash price and location.

Address No. 9622

c/o Mrs. Record, Baltimore (3), Md.

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24 x 18" and 36 x 18" American Hammermills,
35 Ton Plymouth WLG Gas. Locomotive.
25 Ton Diesel, 35 Ton Steam Loco. Cranes.
80 HP to 550 HP Diesel Engines.
20 Ton American Steel Guy Derrick.
35 HP Clyde 3 drum swinger Gas Hoist.
1 Yd. P&H 600A gas crane and dragline.
80, 150, 250 HP HRT Steam Boilers.
MISSISSIPPI VALLEY EQUIPMENT CO.
505 Locust St. St. Louis 1, Mo.

**Diesel Engine Generators
Turbines & Boilers
Complete Plants**

STEPHEN A. DOUGLASS CO.
630 Fort Washington Ave., New York, N. Y.

HEINE CROSS DRUM BOILER

ASME code 252 horsepower 165 lbs., with key caps inspected and guaranteed excellent condition, with steel and trimmings. C. E. type E stoker, skidded, painted ready to ship.

CHAS. G. HARRISON CO.
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Motors, A.C. and D.C., ¼ to 150 H.P. Transformers, 1 KVA to 100 KVA. Air Compressors; Belting; Blowers; Circuit Breakers; Belt Conveyers; Crushers; Drills; Derricks; Fans; Generators; Grinders; Hoists; Lathes; M-G Sets; Electric Locomotives; Mining Machines; Pumps; Reels; Rotary Converters; Starters, AC and DC; Tipple Equipment; R.R. Switches, 100# and 85#.

Electric Hydraulic Shovel, 250 Volts DC. Clam Shell Bucket, single line, 1½ yd. Portable Boring Bar, 5" x 9' 10". Turbo Generator, 200 KW, 250 volts D.C. Speed Reducers, 100 HP. & 250 HP.

Guyana Machinery Co., Logan, W. Va.

RAILWAY EQUIPMENT and Accessories

We can furnish rails, spikes, bolts, angle bars, locomotives, cranes and other railway material. Write, wire or phone for prices.

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200/250	G. E.	220/440/2200	720	I-K
200	G. E.	220/440	514	I-K
200	G. E.	2200	720	I-12
150	West.	2200	327	SYN.
160	Wagner	440	1800	31V
150	G. E.	440	514	I-K
125	G. E.	440	450	I-K
125	G. E.	220/550	400	I-K
100	G. E.	440	400	I-K
75	West.	2300	1200	Syn.
50	Cr. Wh.	240/480	1200	Syn.
50/150	West.	2200/440/220	380/720	C8
(Complete with Niles Speed Reducer, ratio 10:1)				
40	G. E.	220/440	900	KF
25	G. E.	220/440	580	enc.

SLIPRING MOTORS—3 ph. 60 cy.

HP	Make	Volts	RPM.	Type
400	West.	2200	435	CW
260	Burke	440	600	EMV-65
150	West.	2300	490	CW
150	West.	220/440	490	CW
150/75	West.	220/440/2200	580/290	CW
54	Allis Chal.	440	900	—
50	Allis Chal.	220	490	ANY
50	Chandeysson	440	1800	—
5	G. E.	440	1200	MT

TRANSFORMERS—I Ph. 60 Cy.

3—75 kva 2200/4000 Y, 220/440 v sec. Manley.
40—10 kva G.E. 2200 pri. 110/220 v. sec.
48—7 1/2 kva G.E. & West. 2200 pri. 110/220 v. sec.
75—5 kva G.E. & West. 2200 pri. 110/220 v. sec.

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1—100 kw. 250/275 v. DC G.E. Gen. direct driven thru coupling by 1—145 HP 220 v. 900 rpm. G.E. Syn. Motor.

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1—1000 kva GE 3 ph 60 cy 2300/440/220 v 225 rpm AC Gen. dir. conn. to 1200 B.H.P. Rathburn Jones Gas Eng. 225 rpm 22" bore, 28" stroke with auxiliary equipment.

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1—100 kw. Gen. 240 v. 3 ph. 60 cy. 200 rpm. complete with 150 HP Primm Hor. Oil Eng. 210 rpm. and 6 kw. Ideal Exciter.

1—84 kw. Ideal Gen. 240 v. 3 ph. 60 cy. 200 rpm. dir. conn. to 125 HP Primm Hor. Oil Eng. 210 rpm. complete with Ideal 6 kw. Exciter.

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Leaders Read "Record"

(Continued from page 38)

a publication devoted to reporting its business, industrial, and agricultural progress. You have, I think, made quite a contribution towards the growth of this section.

ROBT. STRICKLAND,
President.

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A. B. TAYLOR,
President.

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J. V. SULLIVAN,
Secretary.

Carolina Seaweed Factory (Continued from page 47)

have used it in cookery. It is rich in certain minerals and vitamins, but is of uncertain nutritive value.

Utilization of seaweed in this area followed experiments carried on by the Duke University Marine Laboratory, at Piver's Island and which is still conducting studies in co-operation with the WPB. It was found that the "vegetable" grows profusely in the sounds and bays of central Carolina, and that they are easily harvested. Fishermen and their families fork up the weed into small boats, mostly in late summer and fall, and sell it to Van Sants, the local processing plant, where it is washed, dried, cooked, frozen, and reduced to commercial agar for one or more of the many uses mentioned above.

South's Contracts Rise

(Continued from page 48)

total for this type of work was made up, as usual, of mostly earthwork and airport projects, and showed a drop below the level of the preceding month.

Industrial construction was third in importance among the October sub-totals, a drop of thirty-nine per cent was recorded as compared with the September figure. Private building and road contracts were fourth and fifth with totals of \$7,932,000 and \$5,153,000, respectively.

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2 PLANTS of former WINMAR FIBRE CO.

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WILLMAR, MINN. 8 acres—4,400 sq. ft. floor space in one story cinder block bldgs. R. R. Siding. **Wed. Dec. 13,** 1 P.M. On Premises.
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ST. LOUIS, (Jennings) MO. 7 acres of vacant industrial land. W. Florissant Ave. near Goodfellow Blvd. Abutting Wabash R. R. **Sale Sat. Dec. 16,** 11 A.M. DeSoto Hotel, St. Louis.

BEDFORD, VA. near Roanoke. 2½ acres—83,000 sq. ft. floor area, in 1, 2 and 3 story and basement brick and corrugated iron bldgs., sprinklered, R. R. Siding. **Tues. Dec. 19,** 1 P.M. On Premises.

WHEELING (WARWOOD), W. VA. 178,000 sq. ft. floor space in 1 and 2 story brick and steel bldgs.—4.7 acres, sprinklered, R. R. Sidings. **Wed. Dec. 20,** 1 P.M. Hotel Windsor, Wheeling.

WHEELING, W. VA. 2.83 acres—153,000 sq. ft. floor space, in 2 story brick and steel bldgs. sprinklered, R. R. Siding. **Wed. Dec. 20,** 1 P.M. Hotel Windsor, Wheeling.

WILKES BARRE, PA. 110,309 sq. ft. land—97,000 sq. ft. floor area in 1, 2 and 3 story brick bldgs., sprinklered, R. R. Siding. **Friday, Dec. 22,** 2:30 P.M. Hotel Sterling, Wilkes Barre.

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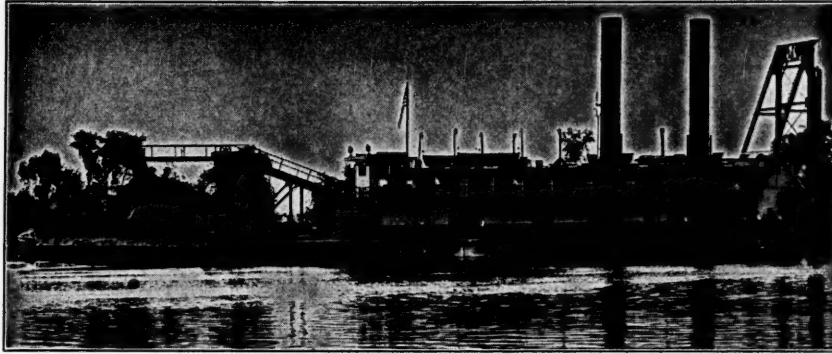
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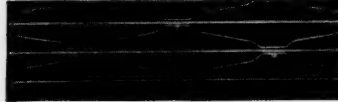
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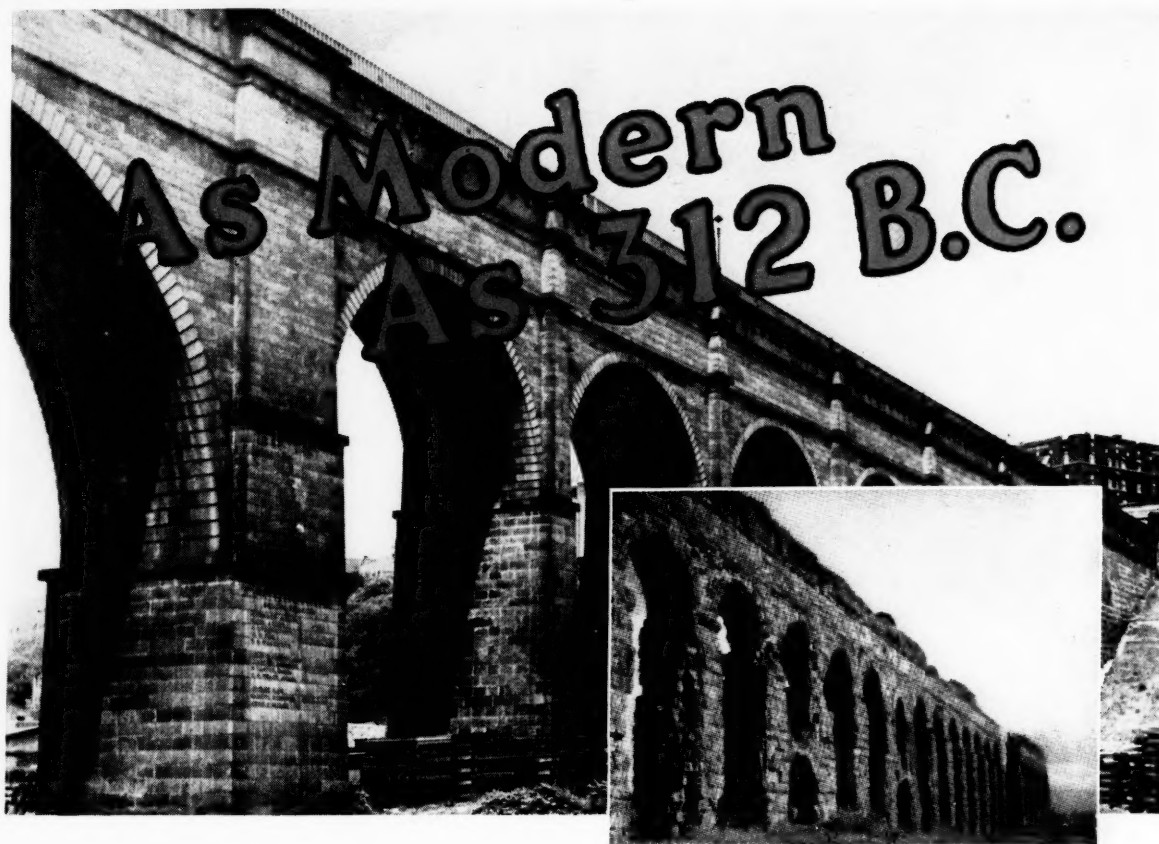
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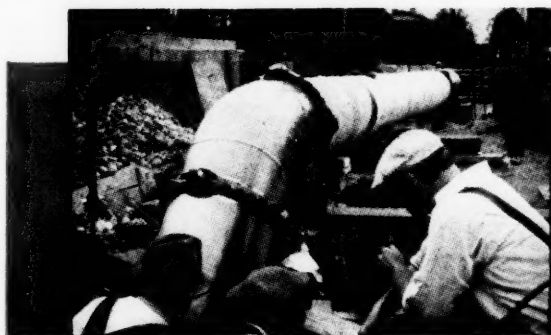
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